

UNDERSTANDING USERS' INTENTION IN SHARING ECONOMY: EVIDENCE FROM CROATIA

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FOREWORD

The 12th international symposium on Region, Entrepreneurship and Development (RED 2023) continues to deliver valuable contributions related to the topic. This year we have altogether 53 papers accepted for presentation and publication in the Proceedings. Authors of studies come from Croatia, Bosnia and Herzegovina, Serbia, North Macedonia, Hungary, Austria, Germany, France, Portugal and Ireland. We witness development and increased interest in sustainability and digital transformation issues that are increasingly present in this years' papers.

In addition to our existing partnering institutions: University of Tuzla, Faculty of Economics in Tuzla, Bosnia and Herzegovina, Croatian Academy of Sciences and Arts, The Institute for Scientific and Artistic work in Osijek and University of Maribor, Faculty of Economics and Business, Slovenia, the great news is that we have a new partner of RED – the long-time partner of Faculty of Economics and Business in Osijek, Pforzheim University, Germany is our new partner, contributing with new members of Programme and Organizing Committees. Moreover, this years' key-note speakers, prof. Thomas Cleff and prof. Harald Strotmann come from Pforzheim. We are sure this new partnership will further contribute our strive for excellency.

This year we have two key note speeches: one delivered by our above mentioned new partners from Pforzheim with the topic: International accreditation as a means of strengthening the competitiveness of business schools, which, to our opinion is crucial for further education service quality development and the second delivered by our colleague, prof. Slavica Singer on UN Sustainable Development Goals 2050 are a shared 'destination' – does it hold for regional ecosystems?

This year we again announce the Best Paper Award. The Best Paper Award for RED 2023 goes to the paper entitled: The impact of covid-19 pandemic on the SME sector and the policy response in Croatia and North Macedonia, co-authored by Maja Has, Ana Krstinovska and Mirela Alpeza. This paper provided a deeper insight into the impact of the pandemic on the SME sector in Croatia and North Macedonia, and a critical review of the measures taken by governments to support the sustainability of SMEs during the pandemic. Congratulations to the authors and we hope to have them next year with similarly good input.

Hoping that this years' event, just like the previous ones, will be a valuable experience for all the participant, I would like to thank all the members of Programme and Organizing Committee, reviewers and key note speakers for their support and engagement in making RED 2023 the best it could be.

Mirna Leko Šimić



RED 2023 Organizing Committee Chair



**RED
2023**

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THE SPECIFICS OF THE RURAL TOURISM DEVELOPMENT IN MEĐIMURJE COUNTY

ABSTRACT

The purpose of the paper is to analyze the rural tourism destination specifics of Međimurje through the existing resource-attraction basis and to assess the level of tourist attraction and the economic valorization success of tourism resources. In addition, the aim is to perceive the identity value of the rural tourist destination of Međimurje and the tourists' satisfaction with the integrated tourist product supply. The analysis of the rural tourism development provides an insight into the tourism potential and the further development possibilities of Međimurje as a recognizable rural tourist destination in the Republic of Croatia. The methodology used is a historical analysis of secondary data from previous research on rural tourism. Primary data is collected as quantitative research through a structured survey questionnaire on a random sample of 289 respondents. The collected data were processed using the statistical program IBM SPSS by applying one sample t-test and one-way ANOVA. The findings reveal that Međimurje offers attractive tourist resources built on sustainability. Furthermore, destination management contributes to increasing overall tourist satisfaction with the quality of Međimurje as a tourist destination. The paper's contribution is significant for future tourism development in Northern Croatia, where Međimurje presents the rising sustainable destination of continental and rural tourism.

Key words: *Međimurje, tourist destination, rural tourism, sustainable tourism development.*

1. Introduction

The main idea of this research paper is to clarify the topic of rural tourism by analyzing the specifics of tourism development in rural areas through the example of Međimurje County. Each tourist destination consists of natural and anthropogenic specifics, which is why an individual level of tourist attraction develops. The specifics of a tourist destination affect the potential economic valorization of tourist resources, reflecting the power of achieving tourist arrivals and overnight stays in receptive countries, such as Croatia, where tourism accounted for 9,6 percent of the GDP in 2020 and 15.9 percent in 2021, the activities of the tourism sector are a vital factor of the economy, which assumes a significant impact on the GDP. Tourism's effects on the economy's vital development are indisputable because the inflow of

foreign exchange revenues affects the settlement of commodity deficits and the establishment of the foreign trade balance. At the same time, tourism has a beneficial effect on reducing unemployment by stimulating economic activities, which achieves a multiplier effect on increasing the income of other related industries.

As a tourism development direction, mass tourism is slowly being abandoned, opening a space to the modern concept of sustainable and responsible development of a tourist destination. Sustainable tourism implies the development of numerous specific forms of tourism due to social progress that affects the change in the motives of modern tourist trends. Globalization processes have changed trends in tourism demand, while the COVID-19 pandemic has further highlighted the fragility of the tourism industry. Rural areas in Northern Croatia are full of natural beauty, plant and animal diversity, and protected natural and cultural heritage but are insufficiently valorized for tourism purposes. However, the fact is that Croatian rural tourism could be better developed at the national level, although rural areas occupy a predominant part of the state territory. Rural areas today are mainly characterized by the depopulation of young residents, and generally, such areas are also less economically developed. It is rural tourism that can play a differential role in the future prosperity of those areas. Today's tourists are driven by new motives that encourage travel and prefer an active holiday over a passive one. Such modern trends of tourism demand create the need to redefine the quality of Croatian tourism to respond to the need for personalized experiences of modern tourists in an authentic space where they can experience a real sense of culture and tradition in contact with the local population. The positive effects of rural tourism on the development of rural areas far exceed the negative ones. Recognized by state tourism institutions, development strategies aimed at the growth of continental tourism have been drawn up. Efforts are being made to reposition Croatia as a country of beauty, fulfilment and well-being. The aim is to encourage the development and commercialization of new internationally competitive specific forms of tourism. Initiatives for developing rural tourism today are increasingly expressed in different regions, which confirms the recognition of their value. In this paper, Međimurje County is being dealt with in the context of a national example of good practice, which was among the first in the country to include the development of rural areas in the determinants of strategic development and thus became one of the carriers of the development of rural tourism. Organic and eco-friendly agricultural producers, production of traditional products, animal farms, folklore and local customs, old crafts, the hospitality of the host, very well-maintained environment, vivid landscape, wellness and health tourism are just some of the many attributes which describe rural tourist offer of Međimurje. Local products, healthier lifestyles, and active natural holidays provide guests with high-quality tourist experiences in rural areas. The driving force of rural development of Međimurje County is the synergy of agriculture and tourism. The development potential of Međimurje tourism is based on natural attractions and rich cultural heritage, mostly located in rural areas and the offer of quality agricultural products and products through catering. Međimurje wine road, with about 30 wine families, is an important generator of economic activities in upper Međimurje and the holder of the promotion and placement of the protected wine brand "Pušipel". (<https://www.turistickeprice.hr/medimurje-svjetski-dan-turizma/>, accessed 9.5.2023).

1.1. Literature review

Croatian tourism is predominantly seasonal and oriented towards mass coastal bathing tourism, the so-called 3S tourism (sun, sea and sand). Gregorić and Musliu (2015) confirm that "through all these years, a tourist identity has been built that rests only on the basic benefits of the sea while other factors have been neglected".

Today, tourists are increasingly attracted to quiet destinations for relaxation, with the beauty of the landscape and nature, places with a traditional way of life. In order to preserve those secluded places and their natural and cultural heritage, great attention should be paid to the sustainable development of rural areas through the management of environmental, economic and social components of tourism. Pure and preserved nature, which implies ecological sustainability, is the main prerequisite for the attractiveness of a rural tourist destination. Tourism development in rural areas encourages economic sustainability by revitalizing the rural environment and the concept of rural development. The possibility of achieving economic benefits based on authentic natural resources improves the quality of life of the local population. A better quality of life then affects social sustainability by contributing to reducing the depopulation trend of rural populations. Furthermore, sustainable tourism development affects the retention of authenticity and uniqueness of rural destinations, which meets the needs and expectations of modern tourists. As modern tourism trends show a decline in interest in mass tourism, various opportunities are opening up for the development of specific forms of tourism as a counterweight to mass tourism, which will also affect the extension of the season.

Rural places usually include areas of slower economic development characterized by a slower life pace, expressed local population traditions and agriculture work customs. Baburić Vranešić and Čuljat (2021) define rural areas as "those in which the natural environment prevails, rural environment, small settlements and villages, hamlets, separate farms with agriculture and forestry as the main economic branches, and most often they are characterized by a poor economic and demographic picture and significant lagging behind urban areas." Maravić (2018) points out that "rural areas in the Republic of Croatia are rich in biodiversity, significant protected natural and cultural heritage that is insufficiently recognized and used for tourist purposes because it has not developed a tourist supply, there is a lack of creators of tourist supply, tourist infrastructure and capacity." According to Galičić and Laškarin (2016), rural areas possess exactly what the city resident, exhausted by the pace of modern life, is looking for personal recreation. The resource base of rural areas provides a handful of opportunities for various tourism activities and specific forms of tourism development according to the tourist desires and market demand. Accordingly, it is necessary to think about the economic valorization of all valuable natural tourist resources and how to move away from the exclusive seasonal character of mass coastal tourism by accepting specific forms of tourism that will encourage tourism throughout the year and disperse visitors to different tourist destinations.

Demonja and Ružić (2010) state that "rural tourism is a collective name for various activities and forms of tourism that occur outside cities and beyond the areas where mass tourism has developed. It is determined by tourist attractions in rural areas." Vukonić and Čavlek (2001) explicate rural tourism as "a form of tourism in which the temporary stay of tourists in a rural environment is implied, which, in addition to clean air and a natural environment, offers visitors various opportunities for active participation in life and work on the farm (e.g. grape and fruit harvesting, hay collection, cattle grooming, etc.), but also participation in holiday and occasional festivities, carnival customs and other manifestations." One of the more recent definitions of the author Bartoluci (2013) depicts rural tourism as "tourism valorization of agricultural areas, natural resources, cultural heritage, rural settlements, local traditional customs and products through specially designed tourist products that mark the identity of the region and meet the needs of guests in the area of accommodation, food and beverage services, recreation and activities, animation and other services with the aim of sustainable local development." Rural tourism according to Demonja (2012) "can be said to represent a relatively new tourist activity that aims to return man to traditional values and natural environment. However, it is important to point out that rural tourism was not created only as a

need for new tourist capacities but as a need to preserve and revitalize, i.e. revive and give new added value to the inherited heritage and authentic promotion of traditional knowledge and skills through the organization of attractive and original tourist supply".

Demonja and Ružić (2010) point out that "the importance of rural tourism is reflected, above all, in the significant interaction of agricultural production, those of traditional products, the presentation of tradition, traditional gastronomy and tourist services and the use of already existing resources." Given the economic subordination of such regions, tourism quickly becomes the main economic activity and the primary source of income for the population (Galičić and Laškarin, 2016). Tomić (2008) lists the main elements of rural tourism: development in settlements under 10,000 inhabitants, natural environment, weak infrastructure, strong individual activities, small facilities, tourism supports other interests (agriculture), and eco and ethnic framework. Bartolucci et al. (2016) emphasize the development of those forms of "rural tourism that least degrade the environment and cultural and historical heritage and can be economically viable."

Due to changes in lifestyle and the accelerated pace of life, the needs and motives that move modern tourists to engage in tourist activities are changing. There is an increasing need for rest, relaxation, and escape from everyday life. Gregorić et al. (2018) emphasize that today's tourism dramatically differs from the former tourism concept because tourists are no longer looking only for beautiful beaches, sun and sea but for new and different experiences. Rončević et al. (2019) point out that "tourists should be offered a unique form of relaxation, refreshment and revitalization with new experiences following the requirements of rural tourism development." Rural areas are becoming increasingly attractive to modern tourists motivated by relaxation and fun and entertainment and health, sports or cultural motives. In order to understand what drives an individual in the direction of tourist demand, it is necessary to define tourist motives. When looking at tourist demand from psychological aspects, it is evident that tourist trends tend to satisfy curiosity, the desire for diversity, and escape from everyday life and many limitations. According to Šuran (2016), "By undertaking a journey, our everyday life changes, we get to know other cultures and ways of life, we pay more attention to ourselves and the needs we feel, the tension caused by work or other reasons decreases, we become intellectually enriched, and we get to know ourselves. These items are also associated with travel goals such as visiting relatives and friends, rest, new insights in the form of culture, playing sports, etc." Kušen (2011) argues that the demand for rural tourism is heterogeneous and includes groups of different age structures, occupations and purchasing power. Their motives for travel include exploring the rural lifestyle and traditions, the need to spend leisure time in a quieter and natural environment, and the possibility of entertainment, education and exploring the traditions of a particular destination. The tourist season lasts throughout the year, with young visitors and families preferring the summer period and the school holiday period.

In contrast, older visitors choose spring or autumn when the traffic intensity is lower. On average, rural tourists stay about three days. According to Goeldner and Ritchie (2009), "the most important motives that make tourism in rural areas interesting and acceptable are classified according to typology as physical, such as relaxation, cultural, such as the discovery of new spaces, interpersonal, such as socialization and meeting new people, and prestige, such as self-introduction and self-actualization."

1.2. The subject of the paper and development of the hypotheses

The subject of this paper is to present the theoretical background of rural tourism by integrating basic concepts and features of rural tourism as a type of specific form of tourism. This paper aims to determine the main prerequisites for rural tourism development and to

provide an insight into the tourism potential and the further development possibilities of Međimurje as a recognizable rural tourist destination in the Republic of Croatia. The major problem statement of this research paper is derived from the change in motives of modern tourists when it comes to travel needs. Tourism trends show a growing demand for tourist activities related to holidays and leisure in village and rural areas. The dynamic tourism market is also characterized by increasingly intense competition. Therefore, tourist destinations must develop a differentiation strategy to stand out and attract guests. What makes a rural tourist destination attractive? How can the sustainable development direction of a rural tourist destination affect the final choice of a place to rest? What kind of products and quality level do tourists expect when staying in Međimurje County? This paper seeks to answer the previous questions. Suppose it is to determine the specifics of rural tourism development in Međimurje County. In that case, it is necessary to examine the level of attractiveness of existing tourism resources and the quality of the tourist supply. It defines the value of rural tourism in Međimurje County in the perception of the specifics of a tourist destination, which contributes to the satisfaction of modern tourist needs. Also, the aim is to prove that the sustainable development of tourism directly affects the protection of the natural landscape, traditions and social customs in a recognizable and authentic form which primarily inspires rural tourists to visit the destination. In the end, the aim is to confirm the impact of offering a quality integrated tourist product on meeting the needs and expectations of modern tourists.

The following research hypotheses were proven through empirical research:

Hypothesis H1: The attractive tourist resources of Međimurje directly and positively influence the perception of the specifics of the development of rural tourist destinations.

Hypothesis H2: There is a positive correlation between focusing on sustainable tourism development in Međimurje and creating an image of a desirable tourist destination.

Hypothesis H3: Destination management contributes to increasing overall tourist satisfaction with the quality of Međimurje as a tourist destination.

2. Research methodology

For the theoretical part of the paper, the methodology used is a historical analysis of secondary data from previous research on rural tourism, which studied existing theories and results of relevant scientific research through databases, scientific and professional articles and Internet sources. In addition, historical analysis was applied in the first part of the paper to clarify the terminology related to the research topic.

Primary data is collected as quantitative research through a structured survey questionnaire compiled using Google Forms app. The research was conducted "online" by sharing on social networks Facebook and Instagram and through the WhatsApp app. In this way, in one month, i.e. from 25.03. to 30.04.2022. a random sample of respondents (N=289) was collected. Respondents could join the survey voluntarily, and the questionnaire was filled out anonymously. The collected data were processed using the statistical program IBM SPSS by applying one sample t-test and one-way ANOVA. Cronbach's alpha coefficient was used to evaluate the reliability of the measurement scale, while the hypotheses were tested using the one-sample t-test and one-way ANOVA. The survey questionnaire contained 33 questions, of which the first five questions related to the general and socio-demographic variables of the respondents, the next four questions to the general consumer habits of the respondents in rural destination travel, and the remaining questions related to the testing of three hypotheses. The survey used closed questions and the 5-point Likert-type scale ranged from 1 (lowest score) to 5 (highest score).

Table 1 below provides an overview of abbreviations of survey questions from the questionnaire to ensure the research's transparency and to facilitate the monitoring of statistical data processing in the IBM SPSS Statistics program. The results of statistical data processing are presented tabularly with the simultaneous interpretation of the relevant values. The items formulated by the Likert scale are distributed in three main parts: construct A (items from AA to AM label) refers to the assessment of the attractiveness of tourist resources in Međimurje, construct B (items from the BA to the BF label) refers to the assessment of sustainable tourism development awareness in Međimurje, construct C (items from the CA to the CG label) to the destination management of the tourist destination of Međimurje.

Table 1: The abbreviations for constructs from empirical research

<i>Construct A: Attractiveness of tourist resources in Međimurje</i>	
AA	Historical and cultural sites
AB	Tourist trails, routes and roads
AC	Local enogastronomic offer
AD	Preservation of the environment and natural beauty
AE	Host hospitality
AF	Active tourism facilities
AG	Ecotourism and ecological preservation
AH	Tourist destination safety
AI	Preservation of the indigenous rural way of life of the local population
AJ	Events, festivals and manifestations
AK	Međimurje offers innovative tourist products for tourists of different ages.
AL	Međimurje is a tourist destination which creates an authentic experience for rural tourists with preserved tradition.
AM	Međimurje is a destination of tourist specifics and a place of unique experiences due to the attractive tourist resources of rural tourism that it possesses.
<i>Construct B: Sustainable tourism development in Međimurje</i>	
BA	Međimurje launches initiatives aimed at sustainability in tourism.
BB	Sustainable development of rural tourism in Međimurje can affect the building of the image of a desirable tourist destination.
BC	Međimurje actively promotes sustainable tourism development.
BD	Međimurje, along with the economic aspect, develops rural tourism taking into account the ecological (environmental protection) and social aspect (involvement of the local community).
BE	The sustainable tourist destination label carried by Međimurje can influence the choice of Međimurje as a target holiday destination.
BF	The epithet of the "Croatian flower garden" well describes the efforts of Međimurje as a sustainable tourist destination in preserving the cleanliness and tidiness of the environment and the natural landscape.
<i>Construct C: Destination management of tourist destination of Međimurje</i>	
CA	Satisfaction with the tourist facilities offer in rural Međimurje
CB	Satisfaction with the quality and price of tourist facilities in rural Međimurje
CC	Međimurje gives more to tourists through the authenticity of high quality experiences and a unique experience.
CD	Continuous management of tourist facilities in Međimurje can affect the increase of tourist arrivals and overnight stays.
CE	A more diverse offer of innovative tourist facilities could affect the extension of stay in Međimurje.
CF	Međimurje develops an integrated supply of innovative and unique contents of rural tourism.
CG	Due to the interesting content offered by rural Međimurje and the price and quality ratio, I will repeat my vacation in Međimurje.

Source: Authors

2. The specifics of the rural tourism development in Međimurje County

After the City of Zagreb, Međimurje County is the smallest Croatian county and one of the country's most densely populated areas. It is located in an important geostrategic position in the northwest of Croatia, bordered by the rivers Mura and Drava and near the emissive markets of Austria, Slovenia and Hungary. It borders two counties, Varaždin County and Koprivnica-Križevci County and two neighbouring countries, Slovenia and Hungary. According to the administrative division, Međimurje County is divided into 22 municipalities and three cities, and the city of Čakovec is the county's administrative, economic, cultural and political center.

According to statistical data, in 2021, 105,863 inhabitants lived in Međimurje County on only 729 km², which per square kilometre gives a population density of 145 inhabitants and thus, Međimurje County can be classified as one of the most densely populated areas in Croatia (https://web.dzs.hr/Hrv_Eng/Pokazatelj/Popis%202021-Prvi%20rezultati.xlsx, accessed 9.8.2022). Observing the terrain relief, Međimurje is located at the contact of two large relief units – the eastern Alps in the west and the Pannonian plain in the east and is therefore divided into two parts – Upper Međimurje, which is a hilly area where vineyards and orchards predominate (also called Međimurje mountains, with an average altitude of 300 meters) and lower Međimurje, which is an alluvial plane between the Mura and Drava with numerous arable land (Biškup, 2013).

The economy of Međimurje County mainly relies on the manufacturing industry, which generates the highest profits and provides the most jobs. Besides the manufacturing industry, agricultural activities, trade, transport of goods, construction and tourism have also been developed. In addition to those mentioned favourable geographical position, the competitive advantages of Međimurje County are numerous entrepreneurial zones, modern infrastructure and energy potentials and a professional workforce. Within the framework of the growing progress of the tourism industry, Međimurje County has a valuable resource-attraction base, which is proven by numerous awards at national and European competitions in the field of tourism. In addition to the mentioned natural and cultural heritage, the fundamental forces of competitiveness of Međimurje tourism are the availability and development of infrastructure that creates a comparative advantage in the tourist market. (Međimurje County, available at: https://medjimurska-zupanija.hr/dokumenti/UO%20za%20gospodarske%20dje_latnosti/Masterplan_razvoja_turizma_Medjimurske_zupanije_2020.pdf, accessed 12.4.2022). Hegeduš and Gregorić (2016) state that each tourist destination is determined by specific traffic conditions that directly affect the traffic connection with the emissive tourist market. Therefore, transport connectivity is fundamental to developing tourism at a particular destination.

2.1. Overview of the current state of rural tourism in Međimurje County

By analyzing the statistics on arrivals and overnight stays of tourists in Međimurje County (<https://medjimurska-zupanija.hr/2022/07/19/objavljen-novi-statisticki-godisnjak-medjimurska-zupanija-u-brojkama/>, accessed 9.8.2022), we can notice an increase in the number of tourist arrivals of 16.47% in 2019 compared to 2017, while the number of overnight stays increased by a total of 17.11% in 2019 compared to 2017. Furthermore, compared to 2021, the figures continue to rise in 2022 when the number of tourist arrivals of 35,79%, while the number of overnight stays increased by 38,42% in 2022.

Based on the data on recorded figures of arrivals and overnight stays of tourists, the average length of stay in Međimurje County is two days. Comparing the length of stay of tourists from 2002 until today, it is obvious that the average length of stay has not changed significantly. The highest percentage of overnight stays was recorded from June to August, i.e. in the last

two years from June to October, while the lowest was from January to March. The total number of overnight stays in Međimurje County in the last 14 years has increased by about 11 times, which is the result of investments in the development of the tourism sector. The increase in tourist indicators, such as the number of arrivals and overnight stays of foreign and domestic tourists, is primarily the result of the diversification of the tourist supply related to the development of specific forms of tourism products and services while increasing the quality of existing and building new accommodation capacities. Also, branding and promotion, with the help of current information and communication technologies that have positioned Međimurje County as one of the leading tourist destinations in the region of Continental Croatia, plays a major role. (https://medjimurska-zupanija.hr/stg76537/wp-content/uploads/2022/07/Nacrt-Plan_razvoja_Medimurske_zupanije_2027.pdf, accessed 9.8.2022). Statistics show that 43.72% of overnight stays refer to domestic guests, while 56.28% refer to foreign guests. Compared to the data for 2019, there is a drastic decrease in tourist arrivals of 48.07% and a decrease in the number of tourist nights of 48.58% in 2020. The reasons for this drastic decline in tourism indicators lie in the emergence of the COVID-19 pandemic, which caused a global decrease in the number of total tourist travellers. According to the statistical analysis, in the structure of overnight stays related to 2019, it can be seen that the largest number of foreign guests comes from neighbouring Slovenia (31.28%), followed by Poland (17.91%) and Germany (9.60%). According to overnight stays, excluding cities, the most visited rural destinations are Sveti Martin na Muri (74.70%), Nedelišće (2.28%), Štrigova (1.17%), and Sveti Juraj na Bregu (0.94%). In comparison, other rural settlements of Međimurje County achieved 1.18% of overnight stays. The statistical data analysis shows a progressive growth in tourist arrivals and overnight stays, which suggests the recognition and desirability of Međimurje as a rural tourist destination. (<https://medjimurska-zupanija.hr/2022/07/19/objavljen-novi-statisticki-godisnjak-medimurska-zupanija-u-brojkama/>, accessed 9.8.2022)

Interestingly, the decrease in tourist arrivals and overnight stays in the pandemic has most affected urban areas – the cities of Čakovec and Prelog, while some rural settlements recorded a slight increase in them. Thus, the settlement of Sveti Martin na Muri achieved an increase in the number of overnight stays of 0.92%, the settlement of Štrigova 0.64%, and Sveti Juraj na Bregu 0.60%.

According to data collected from the eVisitor system, 188 accommodation facilities with 863 accommodation units and 2,141 beds operated in Međimurje in 2021. Compared to the previous year, the number of accommodation facilities in 2021 increased by 18% and beds by 7%. This growth refers to the categories of holiday homes and apartments and 4-star hotels. (<https://tzm.hr/wp-content/uploads/2022/08/Izvjestaj-o-radu-TZMZ-za-2021-godinu.pdf>)

Hotel accommodation is the most common organizational form of accommodation unit, usually categorized with three stars, and only two hotels carry a 4-star categorization, namely Hotel Golfer in Toplice Sveti Martin and Hotel Castellum in Čakovec. In addition, the accommodation offer has recently noticed a trend of increasing private facilities, especially in upper Međimurje. It is supported by the efforts of Međimurje County, which continuously awards grants for the development of tourism in Međimurje County to expand the existing tourist offer and activate the hitherto untapped tourist potential. (https://medjimurska-zupanija.hr/stg76537/wp-content/uploads/2022/07/Nacrt-Plan_razvoja_Medimurske_zupanije_2027.pdf, 9.8.2022).

3. Research results

The description of the socio-demographic variables of the respondents and the results of statistical data processing is presented tabularly with the simultaneous interpretation of the relevant values. Under the given research goals, research hypotheses were set and confirmed by empirical research.

A total of 289 respondents participated in the study and completed the questionnaire by independently labelling responses that best reflected their views and personal opinions about the subject. The first part of the questionnaire examined the socio-demographic characteristics of respondents who participated in this survey. The sample consisted of 187 female (64.7%) and 102 male (35.3%) subjects. Most respondents are aged between 31 and 40 years. In the sample description, the male population accounted for 35.29%, while women participated with a share of 64.71%. In this study, the female gender is more significantly represented, which also limits the research. The sample consisted of consumers (men and women) younger (18-30 years) and middle (31-40 years) of age. According to the educational level, the majority of respondents have a secondary education, most of which (216 or 74.7%) are employed persons with average monthly income ranging from HRK 5,001.00 to HRK 7,000.00 (86 or 29.9%) and from HRK 7,001.00 to HRK 10,000.00 (67 or 23.3%). When researching the consumer habits of the respondents in rural destination travel, almost half of them (142 or 49.1%) stated that they most often travel to rural destinations with their family and that on their journey per person, they usually spend up to 500,00 kn. Half of the respondents, 146 (50.5%), rarely travelled to rural tourist destinations in the past year (1-2 times a year). Nearly two-thirds of respondents, i.e. 187 (64.7%), said that due to the situation related to the COVID-19 pandemic, more travelled to rural tourist destinations than usual. The decrease in travel to rural destinations can be explained by the general global decrease in total tourist trips caused by fears of contracting the coronavirus. Out of the total sample, as many as 122 respondents (42.2%) chose rural tourist destinations for safety reasons because of the situation related to the COVID-19 pandemic; they felt safer in them than in mass tourism destinations.

Proving the reliability of the measurement scale is the next step and is related to checking the confidence level of the sample of respondents. Finally, by calculating Cronbach's alpha coefficient, feedback is obtained on whether the set of items results in internal consistency, i.e. whether there is a correlation between scale variables, i.e. respondents' answers to a particular set of questions.

In order to establish the reliability of the analyzed measurement scale for the set of claims from the survey questionnaire, Cronbach's alpha coefficient was calculated. Additionally, Cronbach's alpha coefficients were calculated to assess the internal consistency of the subscales derived from the factor analysis. Cronbach's alpha reliability coefficients of the subscales were 0.928, 0.834, and 0.853, respectively, indicating excellent reliability of the measurement scale. The result suggests that measuring scale variables have good internal consistency and can be considered a reliable measuring instrument.

Table 3 shows the statistical variables tested on the collected sample of subjects (N=289), based on which Cronbach's alpha coefficient was calculated. The calculation for hypothesis H1 is based on 13 items to prove the premise that the attractive resources that Međimurje possesses improve the perception of recognition of a tourist destination.

Table 3: Statistical variables of the Cronbach's alpha coefficient (H1)

Oznaka čestice	Mean	Std. Deviation	N
AA	3,75	,920	289
AB	3,83	,959	289
AC	4,08	,930	289
AD	4,06	,905	289
AE	4,13	,841	289
AF	3,70	,997	289
AG	3,77	,926	289
AH	4,05	,928	289
AI	3,80	,975	289
AJ	3,75	1,033	289

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3,894	3,702	4,135	,433	1,117	,028	10

Source: Authors

Table 3 above shows that the average of claims (Mean) is 3,894 with a minimum number of responses of 3,702, a maximum number of responses of 4,135, and a variance of 028. The result suggests a significant link between the possession of attractive resources and the recognition of the tourist destination of Međimurje.

Table 4 shows that hypothesis H1 tested the t-test for a statistically significant difference in assessing the attractiveness of Međimurje's tourist resources concerning different tourist attractions. The t-test required a significance level of $\alpha=0.05$. It is evident that all p-value levels, i.e. Sig. (2-tailed), are less than the level of significance, which implies a decision to reject the null hypothesis, and we can say that there is a connection between different types of tourist attractions and the attractiveness of Međimurje's tourist resources, i.e. the variable is statistically significant for the model with a level of significance of 5%.

Table 4: T-test variables (H1)

One-Sample Test

Test Value = 3

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
AA	13,945	289	<,001	<,001	,754	,65	,86
AB	14,726	289	<,001	<,001	,830	,72	,94
AC	19,731	289	<,001	<,001	1,080	,97	1,19
AD	19,884	289	<,001	<,001	1,059	,95	1,16
AE	22,940	289	<,001	<,001	1,135	1,04	1,23
AF	11,974	289	<,001	<,001	,702	,59	,82
AG	14,167	289	<,001	<,001	,772	,66	,88
AH	19,262	289	<,001	<,001	1,052	,94	1,16
AI	13,998	289	<,001	<,001	,803	,69	,92
AJ	12,409	289	<,001	<,001	,754	,63	,87
AK	15,802	289	<,001	<,001	,810	,71	,91
AL	20,732	289	<,001	<,001	1,003	,91	1,10
AM	21,664	289	<,001	<,001	1,052	,96	1,15

Source: Authors

Analysis of t-test results shows that each type of tourist attraction in some way affects the increase in the attractiveness of Međimurje's tourist resources and on creating an impression of the specifics of the tourist destination development.

Table 5: ANOVA (H1)

ANOVA						
	Sum of Squares	df	Mean Square	F	Sig.	Bayes Factor ^a
Between Groups	183,702	4	45,926	25,399	,000	2,209E+14
Within Groups	513,524	285	1,808			
Total	697,226	289				

a. Bayes factor: JZS

Bayesian Estimates of Coefficients^{a,b,c,d}

Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
AK = 1	2,000	2,000	1,821	-,647	4,647
AK = 2	3,509	3,509	,033	3,152	3,866
AK = 3	3,614	3,614	,006	3,463	3,764
AK = 4	4,163	4,163	,004	4,044	4,282
AK = 5	4,624	4,624	,006	4,474	4,774

a. Dependent Variable: AL

b. Model: AK

c. Regression Weight Variable: AM

d. Assume standard reference priors.

Bayesian Estimates of Error Variance^a

Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	1,796	1,821	,024	1,544	2,147

a. Assume standard reference priors.

Source: Authors

The results of a one-way analysis of variance for independent samples with a 5% margin of error and a 95% significance level, as shown in Table 5, yield a variance calculation of 024 for the observed variables. Furthermore, the determined p-value of the F-ratio is less than 0,05, so the null hypothesis is rejected, and the alternative hypothesis is confirmed because the differences between the arithmetic means are statistically significant, i.e. $F(4, 285) = 25,399$; $p < 0,001$. In this case, the variance of 024 confirms the thesis that Međimurje, as a destination, makes authentic tourist experiences by creating an innovative supply based on the attractive natural and anthropogenic resources of rural tourism that it possesses. In other words, the specifics of the rural tourism development are conditioned by an innovative tourist supply of unique experiences built on the attractive beauty of the authentic rural landscape and preserved cultural heritage. Therefore, following the results obtained by t-test and ANOVA, hypothesis H1 can be accepted: *The attractive tourist resources of Međimurje directly and positively influence the perception of the specifics of the development of rural tourist destinations.*

Table 6: Statistical variables of the Cronbach’s alpha coefficient (H2)

Oznaka čestice	Mean	Std. Deviation	N
BA	3,90	,808	289
BB	4,27	,743	289
BC	4,06	,801	289
BD	4,03	,772	289
BE	4,05	,804	289
BF	4,18	,825	289

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4,082	3,900	4,270	,370	1,095	,016	6

Source: Authors

Table 6 presents the statistical variables of the collected sample of respondents (N=289), based on which Cronbach’s alpha coefficient was calculated. The calculation for proving H2 is based on six items related to proving the premise of whether there is a positive correlation between focusing on the sustainable development of the tourist destination of Međimurje and building the image of a desirable tourist destination. As notable from the table, a representation of Cronbach’s alpha coefficient is based on the calculation of 6 statistical variables proving the hypothesis H2 – that there is a positive correlation between focusing on the sustainable development of the tourist destination of Međimurje and building the image of a desirable tourist destination. The average of statements (Mean) from Table 6 above is 4,082, with a minimum number of responses of 3,900 and a maximum number of responses of 4,270, and a variance of 016. Such a result points to the fact that there is a significant link between the sustainable development of the Međimurje tourist destination and building the image of a desirable tourist destination.

The t-test in Table 7 was performed for six items that were used to confirm the H2 hypothesis. With the help of the t-test, a statistically significant difference existed between the focus on the sustainable development of the tourist destination of Međimurje and the construction of the image of a desirable tourist destination. The t-test required a significance level of $\alpha=0.05$.

Table 7: T-test variables (H2)

One-Sample Test

Test Value = 3

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
BA	18,925	289	<,001	<,001	,900	,81	,99
BB	29,059	289	<,001	<,001	1,270	1,18	1,36
BC	22,539	289	<,001	<,001	1,062	,97	1,16
BD	22,782	289	<,001	<,001	1,035	,95	1,12
BE	22,239	289	<,001	<,001	1,052	,96	1,15
BF	24,244	289	<,001	<,001	1,176	1,08	1,27

Source: Authors

It is evident that all p-value levels, i.e. Sig. (2-tailed) are less than the level of significance. It can be concluded that there is a link between focusing on the sustainable development of the tourist destination of Međimurje and building the image of a desirable tourist destination, i.e. the variable is statistically significant for the model with a significance level of 5%. The analysis of the t-test shows that the sustainable development of the tourist destination of Međimurje in some way affects the construction of the image of a desirable tourist destination that takes proactive steps in protecting and preserving natural and anthropogenic resources. It also increases the attractiveness of Međimurje's tourist resources and creates an impression of the peculiarities of a tourist destination. Based on the t-test results, hypothesis H2 can be accepted.

Table 8: ANOVA (H2)

ANOVA						
	Sum of Squares	df	Mean Square	F	Sig.	Bayes Factor ^a
Between Groups	149,151	4	37,288	20,867	<,001	2,420E+11
Within Groups	507,488	285	1,787			
Total	656,639	289				

a. Bayes factor: JZS

Bayesian Estimates of Coefficients^{a,b,c,d}

Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
BB = 1	2,000	2,000	,600	,481	3,519
BB = 2	3,000	3,000	,225	2,070	3,930
BB = 3	3,353	3,353	,016	3,109	3,598
BB = 4	4,084	4,084	,004	3,965	4,203
BB = 5	4,460	4,460	,004	4,344	4,576

a. Dependent Variable: BC

b. Model: BB

c. Regression Weight Variable: BA

d. Assume standard reference priors.

Bayesian Estimates of Error Variance^a

Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
Error variance	1,774	1,800	,023	1,526	2,122

a. Assume standard reference priors.

Source: Authors

Based on the one-way analysis of variance for independent samples with the possibility of an error of 5% and a level of significance of 95%, Table 8 shows the variance calculation is 023 for the observed items. The alternative hypothesis is confirmed after the p-value of the F-ratio is determined to be less than 0,05. The differences between the arithmetic means are statistically significant, i.e. $F(4, 285) = 20,867$; $p < 0,001$. The variance of 023 suggests that the active promotion of sustainability-oriented initiatives in tourism contributes to building the image of a desirable tourist destination. Raising awareness and informing about

sustainable development initiatives creates a positive image of the tourist destination of Međimurje, which results in multiple positive impacts on all participants involved in the tourism industry and on meeting their requirements and expectations regarding environmental and social responsibility.

Based on the results obtained by t-test and ANOVA, one can accept hypothesis H2, which reads: *There is a positive correlation between focusing on the sustainable tourism development in Međimurje and creating an image of a desirable tourist destination.*

Table 9: Statistical variables of the Cronbach's alpha coefficient (H3)

Item Statistics							
	Oznaka čestice	Mean	Std. Deviation	N			
	CA	3,88	,791	289			
	CB	3,97	,820	289			
	CC	3,97	,849	289			
	CD	4,34	,747	289			
	CE	4,32	,757	289			
	CF	3,98	,801	289			
	CG	4,27	,800	289			
Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4,103	3,882	4,339	,457	1,118	,039	7

Source: Authors

Table 9 shows the statistical variables of the collected sample of respondents (N=289), based on which Cronbach's alpha coefficient was calculated. The calculation for proving H3 is based on seven items that were related to proving the hypothesis that destination management contributes to increasing overall tourist satisfaction with the quality of Međimurje as a tourist destination. The same table shows Cronbach's alpha coefficient based on the calculation of 7 statistical variables proving hypothesis H3 that destination management contributes to increasing overall tourist satisfaction with the quality of destination Međimurje. The average of the statements (Mean) from Table 9 above is 4,103, with a minimum number of answers of 3,882, a maximum number of answers of 4,339, and a variance of .039. Based on the results of the statistical processing, it can be concluded that there is a significant link between the management of the integrated tourist supply and the increase in the level of overall tourist satisfaction with the quality of the Međimurje tourist destination. The t-test that was carried out in Table 10 shows seven items that were used to confirm hypothesis H3. With the help of the t-test, the existence of a statistically significant difference between destination management and the increase in the level of overall tourist satisfaction with the quality of the tourist destination Međimurje was tested.

Table 10: T-test variables (H3)

One-Sample Test

Test Value = 3

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
CA	18,974	289	<,001	<,001	,882	,79	,97
CB	20,014	289	<,001	<,001	,965	,87	1,06
CC	19,460	289	<,001	<,001	,972	,87	1,07
CD	30,469	289	<,001	<,001	1,339	1,25	1,43
CE	29,681	289	<,001	<,001	1,322	1,23	1,41
CF	20,707	289	<,001	<,001	,976	,88	1,07
CG	26,900	289	<,001	<,001	1,266	1,17	1,36

Source: Authors

The t-test required a significance level of $\alpha=0.05$. It is evident that all levels of p-value, i.e. Sig. (2-tailed), are less than the level of significance, and we can say that there is a link between managing the integrated tourist supply and increasing the level of overall tourist satisfaction with the quality of the tourist destination of Međimurje, i.e. the variable is statistically significant for the model with a level of significance of 5%. It also increases the level of quality of the integrated tourist supply, as well as the creation of the impression of the specifics of the tourist destination. Based on the t-test results, hypothesis H3 can be accepted.

Table 11: ANOVA (H3)

ANOVA						
	Sum of Squares	df	Mean Square	F	Sig.	Bayes Factor ^a
Between Groups	221,614	4	55,403	38,994	,000	2,852E+22
Within Groups	403,514	285	1,421			
Total	625,127	289				

a. Bayes factor: JZS

Bayesian Estimates of Coefficients^{a,b,c,d}

Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
CD = 1	2,000	2,000	1,431	-,346	4,346
CD = 2	3,600	3,600	,095	2,994	4,206
CD = 3	3,394	3,394	,014	3,164	3,624
CD = 4	4,133	4,133	,003	4,022	4,245
CD = 5	4,748	4,748	,002	4,651	4,845

a. Model: CE

b. Model: CD

c. Regression Weight Variable: CB

d. Assume standard reference priors.

Bayesian Estimates of Error Variance^a

Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	1,411	1,431	,015	1,213	1,687

a. Assume standard reference priors.

Source: Authors

Table 11 shows the variance calculation for independent samples of the observed items, 015. The differences between the arithmetic means are statistically significant, i.e. $F(4, 285) = 38,994$; $p < 0,001$ and the alternative hypothesis is confirmed. Variance 015 says that destination management affects the development of more diverse offers of innovative tourist facilities, which naturally affects the final satisfaction with the quality of tourist facilities in rural Međimurje. Achieved guest satisfaction is the ultimate goal of every tourist destination because it results in an increase in tourist arrivals and overnight stays, an extension of stay spending and an increase in tourist spending and repeated visits.

From the results obtained by t-test and ANOVA, it is concluded that hypothesis H3 can be accepted; *Destination management contributes to increasing overall tourist satisfaction with the quality of Međimurje as a tourist destination.*

4. Discussion

This research paper explores, defines and analyses how Međimurje County builds its destination recognition on three components of tourism development: attractive tourism resources, sustainable tourism development and destination management. Since components

are complementary to each other, they need to be improved together, and therefore there is a need to create and build unique differentiation strategies.

The global tourism market is increasingly competitive, so offering an innovative product based on its attractive natural and anthropological resource base and an authentic experience for rural tourists is crucial. Moreover, such an authentic experience could add value and influence the perception of the peculiarities of a tourist destination. The findings of this research paper thus support the research made by Guangming and Chaozhi (2022), who claim that the perceived value of rural tourism resources significantly affects the attractiveness and loyalty of traditional tourism resources. In this process, experience value perception is a positive intermediary between resource attraction and tourist loyalty.

The papers' findings further established a positive correlation between the focus on the sustainable development of tourism in Međimurje County and building the image of a desirable tourist destination. Furthermore, previous studies (Soliman, 2019; Carvalho, 2022; Dai et al., 2022) have proved that the location image is a significant component that impacts tourists' decision-making, selection of tourist destination and future behaviour. Hence, sustainable development is the key prerequisite for maintaining the uniqueness of the spatial and authenticity of the cultural identity of a rural destination, which can meet the needs and expectations of modern tourists from staying in Međimurje County as a desirable destination of rural tourism.

Modern trends in tourist demand put tourists in focus as consumers of various tourist products that they choose according to their capabilities, wishes and needs. The goal of each tourist destination is to achieve tourist satisfaction with integrated tourist offers, to keep tourists in the area as long as possible, to generate revenues for the destination with overnight stays and spending, and to motivate them to visit again. When comparing previous studies on how the perception of destination quality influences the loyalty of tourists, Yacob et al. (2021) emphasize that the perception of destination also influences tourists' behaviour to return to the tourist village or destinations, stating that the perceptions of rural tourism destinations' quality and tourist satisfaction positively influence behavioural intention, which also positively influences the loyalty of rural tourism destinations.

In connection with these findings, it is evident how this research paper supports and enriches previous studies' results.

4.1. Limitations and contribution of the research

Based on the conducted research, certain limitations can be found, and they have affected the statistical processing of data. The study significantly represented the female sex (64.71%) compared to the male sex (35.29%), and the respondents were younger (18–30 years) and middle age (31–40 years). It represents a study limitation because the sample is unevenly distributed according to sex and age characteristics. Since respondents of all ages are not equally represented, it is highly recommended that future research is conducted on a suitable sample of visitors in accommodation units in rural Međimurje to get a complete picture of consumers in rural tourism.

The survey was conducted "online," and the questionnaire was completed electronically. Therefore, the survey's limited duration and the sample collected merely through an "online" survey represent the additional two limitations of the survey.

The paper's contribution is significant for future tourism development in Northern Croatia, where Međimurje presents the rising sustainable destination of continental and rural tourism. This research paper emphasizes the importance of creating a recognizable image of a rural tourist destination based on the concept of sustainable tourism development. Focusing on sustainable tourism development affects the retention of authenticity and uniqueness of the

rural destination, which meets the needs and expectations of modern tourists. The recommendation for further research on this topic is that in the future, the same research will anticipate a suitable sample of accommodation units in rural Međimurje and their guests. This way, a complete picture of consumers in rural tourism of the observed tourist destination could be obtained.

5. Conclusion

The primary objectives of the empirical research of this paper were to determine whether Međimurje can be a recognizable tourist destination that bases the development of rural tourism on the specifics of the existing attraction-resource base, what is the role of sustainable tourism development in building the image of a tourist destination and whether Međimurje manages to respond to the expectations of tourists with destination management.

According to the definition of research hypotheses, they were tested by t-test and ANOVA and each of the three hypotheses was confirmed. The confirmed results prove that Međimurje successfully valorizes its attraction-resource base and develops rural tourism to its full potential. The t-test analyses results also provide statistically significant differences ($p < 0.05$) within the assessment of the attractiveness of tourist resources, sustainable development as well as destination management concerning building a desirable rural tourist destination and to increase in the level of overall tourist satisfaction with the quality of the tourist destination of Međimurje. Results made by one-way ANOVA with a variance of 024 confirm the thesis that Međimurje as a destination makes authentic tourist experiences by creating an innovative supply based on attractive natural and anthropogenic resources of rural tourism that it possesses. Međimurje County thus tends to preserve its attractive rural natural and anthropogenic identity by implementing nature conservation strategies and active promotion of sustainability-oriented initiatives in tourism. Therefore, it contributes to creating the image of a desirable tourist destination.

Furthermore, one-way ANOVA results with a variance of 023 suggest that raising awareness and informing about sustainable development initiatives creates a positive image of the tourist destination of Međimurje, which results in multiple positive impacts on all participants involved in the tourism industry as well as on meeting their requirements and expectations in terms of environmental and social responsibility. Finally, one-way ANOVA results with a variance of 015 imply that destination management in Međimurje affects the development of a more diverse supply of innovative tourist facilities, which has a natural effect on the absolute satisfaction with the quality of tourist facilities in rural Međimurje. Achieved guest satisfaction is the ultimate goal of every tourist destination because it results in an increase in tourist arrivals and overnight stays, an extension of stay spending and an increase in tourist spending and repeated visits. This paper also proves that rural tourism development in Međimurje successfully valorizes its attraction-resource base and develops rural tourism to its full potential. It is reflected in the growing tourist indicators, tourist arrivals and overnight stays, which further indicates the perception of Međimurje as a rising sustainable destination of continental and rural tourism.

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EFFICIENCY OF ENVIRONMENTAL TAXES TOWARDS SUSTAINABLE DEVELOPMENT AND GREEN GROWTH: EVIDENCE FROM EU

ABSTRACT

Nowadays, environmental problems such as water pollution and air pollution have caused direct damage to the ecosystems of the European Union member states. Moreover, they have also affected sustainable development and the impossibility of green growth development. A key determinant in solving some environmental problems is the efficiency of government instruments, especially environmental instruments. Therefore, governments have various instruments at their disposal. One of these instruments are environmental taxes. They have a dual role - to raise tax revenues and to change consumer behaviour. In addition, they are a key instrument for achieving the European Union's environmental goal of becoming a carbon-neutral continent by 2050. To maintain the balance between total government revenues and expenditures, environmental taxes can generate additional public revenues. Moreover, they have the potential to replace other types of taxes. The main objective of the paper is to examine the efficiency of environmental taxes, i.e. energy taxes, pollution taxes and transport taxes in terms of sustainable development and green growth in the European Union member states. In order to obtain empirical results, data envelopment analysis was applied. This is a non-parametric method based on mathematical more accurate linear programming. Three inputs and three outputs were used to evaluate the performance of the European Union member states. Different types of environmental taxes - energy, pollution and transport - were used as input variables, while total investment as a share of gross domestic product, greenhouse gas emissions per capita and the share of renewable energy were used as output variables. The analysis was conducted for the period 2016 - 2020. The results showed significant differences in the efficiency of environmental taxes between the member states of the European Union.

Key words: *Environmental taxes, Green growth, Sustainable development, Data Envelopment Analysis, European Union.*

1. Introduction

In recent years, the world is facing extreme climate change. As a result, we are all witnessing environmental disasters, but also initiatives to increase environmental awareness and promote sustainable development and green growth. For this reason, the European Union has developed a strategy "European Green Deal" in response to all environmental challenges. The main goal of this strategy is to have zero net emissions of greenhouse gases by 2050, to decouple economic growth from resource consumption, and to leave no person or place behind. This is also a key component of this Commission's strategy to implement the United Nations 2030 Agenda and the Sustainable Development Goals. In order to achieve the desired

goals, financial resources as well as instruments will be created and improved. One of the core elements of this strategy are: (European Commission, 2019, 3) "increasing the EU's climate targets for 2030 and 2050, providing clean, affordable and secure energy, mobilising industry for a clean and circular economy, energy and resource efficient construction and renovation, accelerating the transition to sustainable and smart mobility, from farm to fork.' designing a fair, healthy and environmentally friendly food system, preserving and restoring ecosystems and biodiversity, striving for a toxic-free environment without pollution, promoting green financing and investment and ensuring a just transition, greening national budgets and sending the right price signals, mobilising research and promoting innovation, activating education and training, and a green oath: 'do no harm' ". To achieve the desired goals, the European Green Deal recognises the role of taxation in the transition to greener and more sustainable growth. Moreover, tax systems need to be better aligned with the EU's climate goals. Therefore, government intervention is inevitable. Several green instruments are available under the current EU governance system. These include innovation policy, environmental and climate legislation, subsidies, state aid, tradable permits, and environmental taxes.

Environmental taxes are an instrument of public policy that has an impact on people's behaviour. According to the Regulation on European Environmental Economic Accounts (No. 691/2011), an environmental tax is a tax whose tax base is a physical unit (or a proxy for it) of something that is shown to have a specific negative impact on the environment. There are four different types of environmental taxes, namely energy taxes, transportation taxes, pollution taxes, and resource taxes. Their main role is to influence people's behaviour in order to mitigate environmental problems, but also to support fiscal consolidation, reduce other taxes, and promote economic growth. Based on data from Eurostat (2022), total environmental tax revenues in the EU in 2021 were €325.8 billion, equivalent to 2.2% of EU gross domestic product (GDP). Looking only at the types of environmental taxes, energy taxes top the list, accounting for more than three-quarters of EU environmental tax revenues in 2021. Among EU Member States, the countries with the highest share of environmental taxes (as a percentage of GDP) in 2021 are Greece (3.93%), Croatia (3.12%), and the Netherlands (3.09%). The countries with the lowest share are Spain (1.76%), Luxembourg (1.45%), and Ireland (1.16%). Therefore, the effectiveness of environmental taxes in promoting sustainable and green growth is of great importance to EU member states.

The main objective of the paper is to examine the efficiency of environmental taxes in terms of sustainable development and green growth in the member states of the EU. In order to obtain empirical results, data envelopment analysis (DEA) was applied. The empirical analysis was conducted for the period 2016-2020 for the EU-27 member states. The contribution of the paper is twofold. First, it presents the current situation of environmental taxes in the EU and the main research studies already conducted. The second contribution lies in the empirical analysis, which focuses on the efficiency of different types of environmental taxes to promote sustainable and green growth in the EU.

2. Literature review

There is a fairly large body of work in the literature that examines the impact of environmental taxes or their specific categories on economic growth (Doekmen, 2012; Abdullah and Morley, 2014; Nanthakumar et al, 2014; Loganathan et al, 2014; Andrei et al, 2016; Alper and Oguz, 2016; He et al, 2019; Busu and Trica, 2019; Zhang et al., 2019; Hajek et al, 2019; Dogan et al, 2022; Dogan et al, 2023), but there is a lack of literature on the

efficiency of environmental taxes (Rosiek, 2015; Wang and Le, 2019). Therefore, the aim of this paper is to fill this gap.

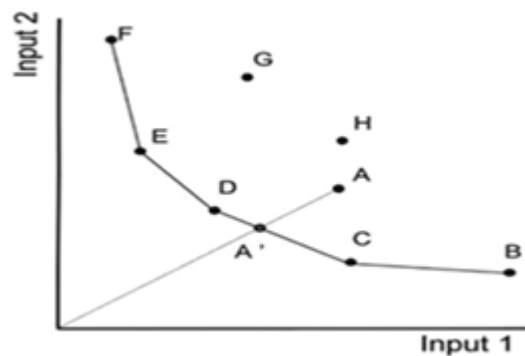
According to economic theory and recent studies, environmental taxes can affect the economy in different ways. For example, Abdullah and Morley (2014) studied the relationship between environmental taxes and economic growth for 23 EU countries during 1995-2006, and the results showed that there is a relationship between environmental taxes and economic growth, but they also indicated that increasing environmental taxes does not seem to have a significant impact on the economy. Dogan et al. (2022) examined the effects of green growth and environmental taxes on CO₂ emissions with the inclusion of sustainability indicators for a group of 25 environmentally friendly countries from 1994 to 2018 by applying advanced panel data analysis models. They found that the coefficients of green growth, environmental taxes, renewable energy, and energy efficiency are negative at lower, middle, and higher quantiles. Moreover, environmental taxes, renewable energy, and energy efficiency are the most important determinants of CO₂ emission reduction in a group of 25 green countries. In addition, Dogan et al. (2023) investigated the extent to which energy and environmental taxes promote or inhibit renewable energy deployment in EU countries. The empirical results show that an increase in economic growth and oil prices promotes the deployment of renewable energy, while environmental and energy taxes have a negative impact on the deployment of renewable energy in EU countries. Therefore, it is inevitable to reform the tax structure to promote renewable energy development. Similarly, Hajek et al. (2019) investigated the role of environmental taxes and emissions trading schemes in European countries. The results show that environmental taxes do not promote renewable energy in the short term, although the effects of environmental taxes are only visible in the long term.

In order to curb climate change and environmental problems in all EU member states, the evaluation of environmental efficiency becomes very important. Moreover, it is also important to ensure sustainable development and green growth. One of the possible solutions lies in the evaluation of environmental efficiency. This can be viewed from different angles, but in this paper, the focus is on the efficiency of revenue from environmental taxes. According to economic theory, revenues are an important part of the budget because they cover expenditures. If the budget has a surplus, it means that the expenditure side is fully covered and more projects can be implemented. One of the most important theoretical bases for evaluating environmental efficiency comes from Faere et al. (1989). Later, the work was extended by (Seiford and Zhu, 2005; Zhou et al., 2013; Lin and Liu, 2015; Wang et al., 2016; Liu and Wu, 2017). In his paper, Rosiek (2015) examined the impact and efficiency of environmental tax policies on sustainable development using data envelopment analysis (DEA) for the year 2012. He used input and output variables representative of environmental tax policy and sustainable development. The two basic models DEA, i.e., the Charnes-Cooper-Rhodes and Banker-Charnes-Cooper models, were applied. The results show that only ten EU countries, namely Austria, Belgium, the Czech Republic, France, Latvia, Lithuania, Portugal, Romania, Spain, and Sweden, are technically efficient and apply best practices. All other EU countries (Bulgaria, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Slovakia, Slovenia and the United Kingdom) are technically inefficient. Based on these results, this paper was extended to a longer period of time and to more EU countries. This filled a gap in the literature.

3. Methodology and Data

A nonparametric mathematical model DEA was applied to evaluate the relative or technical efficiency of comparable units based on empirical data on their inputs and outputs. This is a non-parametric method based on mathematical, more accurate linear programming. The foundation for the DEA model was laid by Farnell in 1957. Later, the DEA was developed by Charnes et al. (1978). This method determines the most efficient units in a given set without assuming any kind of functional relationship between inputs and outputs. The data on the selected inputs and outputs are included for all the analyzed decision makers (DM) in a linear program that represents the selected model DEA. In this way, the efficiency of a single decision maker is evaluated within a group of comparable decision makers, i.e., decision makers that convert multiple inputs into multiple outputs identical to those of the observed decision maker. Since the efficiency of a decision maker is measured relative to other decision makers, it is a relative efficiency whose value ranges from 0 to 1, with deviations from 1 attributed to an excess of inputs or a shortage of outputs. DEA determines the empirical frontier of efficiency (the production possibilities frontier) by reducing inputs from below and outputs from above. Since it is determined by the best existing decision makers, the efficiency frontier is an attainable goal sought by inefficient decision makers. Therefore, DEA is based on extreme perceptions by comparing each decision maker only with the best ones. There are two basic models of DEA. The first is the Charnes-Cooper-Rhodes model (CCR) and the second is the Banker-Charnes-Cooper model (BCC). The choice of model depends not only on the theoretical framework, but also on the context and purpose of the analysis, as well as the long-term or short-term view (Rowena et al., 2006, 103). The efficiency curve (frontier) consists of units that make the best use of resources to produce a given output. This curve also represents the goal that the inefficient units are trying to achieve. Inefficient units can achieve their efficiency by representing their input and output values on the curve. Figure 1 shows the input-oriented model of the efficiency frontier.

Figure 1: Efficient unit



Source: Zhu, 2002.

The general relationship that have been tested in terms of efficiency of environmental taxes can be expressed by the following function of each country i :

$$Y_i = f(X_i), i=1,2,3, \dots, n \quad (1)$$

where Y_i is an output measure of environmental performance, and X_i is the level environmental taxes revenues of each county i .

According to Rowena et al. (2006), the choice of model (CCR or BCC) depends not only on the theoretical framework, but also on the context and purpose of the analysis, as well as the long-term or short-term view. In general, certain general rules and assumptions apply to basic data sharing analysis models (CCR and BCC models). It is not necessary for the input and output values to be the same units of measure of the method to work equally well with different units of measure, and this is one of their greatest advantages.

In choosing the type of model, the characteristics of the data and knowledge of the yield type characteristics of the process being analyzed are critical. Coelli et al. (2005) found that the results obtained with the CCR and BCC models decompose the technical efficiency values calculated under the assumption of constant returns to scale into pure technical efficiency and efficiency resulting from scale. Therefore, to study the efficiency of environmental taxes in terms of sustainable development and green growth, with a particular focus on the European Union member states for the period 2016-2020, the CCR and BCC models were used.

3.1. CCR model

Charnes et al. (1978) pioneered the definition of the efficiency formula. It was later revised for the first time in 1984. The CCR model implies constant returns to scale. This means that output variables increase proportionally to input variables (Cooper et al., 2006). This model assumes constant returns to scale, and because of the change in this assumption, other data-limiting models have emerged, including the BCC model (Rowena et al., 2006).

This model is specified in the following way:

$$\max \theta_0 = \frac{\sum_{r=1}^s u_r y_{r0}}{\sum_{i=1}^m v_i x_{i0}} \tag{2}$$

Subject to:

$$\frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1 \quad (j = 1, 2, \dots, n) \tag{3}$$

$$u_1, u_2, \dots, u_s \geq 0; v_1, v_2, \dots, v_m \geq 0 \tag{4}$$

The above constraints specify that the ratio of output to input for each decision unit should not exceed 1. In addition, the goal is to be assigned weights by which the ratio is maximized for a particular decision unit being analyzed. Due to the structure of the actual constraints, the optimal value is 1.

3.2 BCC Model

The BCC model was developed by Banker, Charnes, and Cooper in 1984. This model assumes increasing returns to scale. Unlike the CCR model, which is represented by a straight

line, the BCC model is represented by a convex efficiency frontier. The model is specified in the following way:

$$\max h_k = \sum_{r=1}^s u_r y_{rk} + u_* \quad (5)$$

Subject to:

$$\sum_{i=1}^m v_i x_{ik} = 1 \quad (6)$$

This model assumes variable returns on the scope of action and the production frontier, which is traversed by a convex shell of decision makers with linear and concave characteristics. The most important step in formulating a DEA model is the selection of the input and output variables, as it can greatly improve the quality of the results in subsequent steps. According to theoretical suggestions, the number of units should be at least three to five times larger than the total number of input and output variables.

For each analysed country, the underlying inputs and outputs are included in the analysis. All variables, as well as their definitions and data sources, are listed in Table 1.

Table 1: Definition of variables

Variable	Role	Definition	Data sources
Energy taxes revenues (Ene_tax)	Input	This category includes taxes on energy production and on energy products used for both transport and stationary purposes. The most important energy products for transport purposes are petrol and diesel. Energy products for stationary use include fuel oils, natural gas, coal and electricity. Taxes on biofuels and on any other form of energy from renewable sources are included. Taxes on stocks of energy products are also included. Carbon dioxide (CO ₂) taxes are included under energy taxes rather than under pollution taxes. It is measured in million EUR, annually.	Eurostat
Pollution taxes revenues (Poll_tax)	Input	This category includes taxes on measured or estimated emissions to air and water, management of solid waste and noise. It is measured in million EUR, annually.	Eurostat
Transport taxes revenues (Tra_tax)	Input	This category mainly includes taxes related to the ownership and use of motor vehicles. Taxes on other transport equipment (e.g. planes, ships or railway stocks), and related transport services (e.g. duties on charter or scheduled flights) are also included here. All taxes on means of transport are included, even taxes on means of transport that are considered to be relatively more environmentally friendly such as railway rolling stock and public transport in general as well as taxes on electric cars. Taxes on vehicle insurance are also	Eurostat

Variable	Role	Definition	Data sources
		included provided they are specific taxes on the insurance of vehicles and not general insurance taxes levied on all kinds of insurance contracts. It is measured in million EUR, annually.	
Total investment share of GDP by institutional sectors (Inv)	Output	This variable presents the investment for the total economy, government, business as well as household sectors. The indicator gives the share of GDP that is used for gross investment. It is defined as gross fixed capital formation (GFCF) expressed as a percentage of GDP for the government, business and households sectors. GFCF consists of resident producers' acquisitions, less disposals of fixed assets plus certain additions to the value of non-produced assets realised by productive activity, such as improvements to land. Fixed assets comprise, for example, dwellings, other buildings and structures (roads, bridges etc.), machinery and equipment, but also intangible assets such as computer software and other intellectual property. It is measured annually.	Eurostat
Greenhouse gas emissions per capita (GHG)	Output	This variable measures total national emissions of the so called 'Kyoto basket' of greenhouse gases, including carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), and the so-called F-gases (hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride (NF ₃) and sulphur hexafluoride (SF ₆)). Emissions data are submitted annually by the EU Member States as part of the reporting under the United Nations Framework Convention on Climate Change (UNFCCC). It is measured annually.	Eurostat
Share of renewable energy in gross final energy consumption by sector (RE)	Output	This variable measures the share of renewable energy consumption in gross final energy consumption according to the Renewable Energy Directive. The gross final energy consumption is the energy used by end-consumers (final energy consumption) plus grid losses and self-consumption of power plants. It is measured annually.	Eurostat

Source: Author

4. Empirical results

The descriptive statistics of the average values for all variables used in the analysis DEA are shown in Table 2.

DMU	2016		2017		2018		2019		2020	
Germany	0.02	1.00	0.02	1.00	0.01	1.00	0.01	1.00	0.01	1.00
Greece	0.13	1.00	0.14	1.00	0.11	0.11	0.11	0.14	0.11	0.14
Hungary	0.13	0.14	0.12	0.12	0.16	0.20	0.22	0.36	0.14	0.18
Ireland	0.20	1.00	0.20	1.00	0.22	1.00	0.36	1.00	0.29	1.00
Italy	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Latvia	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lithuania	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.95
Luxembourg	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Malta	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Netherlands	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.03
Poland	0.04	0.05	0.04	0.05	0.04	0.05	0.05	0.05	0.04	0.05
Portugal	0.28	0.32	0.30	0.44	0.25	0.33	0.22	0.29	0.22	0.35
Romania	0.53	1.00	0.73	1.00	0.54	1.00	0.52	0.76	0.43	0.97
Slovakia	0.33	0.43	0.33	0.37	0.37	0.45	0.33	0.33	0.30	0.32
Slovenia	0.42	0.43	0.44	0.46	0.46	0.48	0.40	0.43	0.46	0.47
Spain	0.02	0.03	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.03
Sweden	0.14	1.00	0.15	1.00	0.16	1.00	0.12	1.00	0.15	1.00

Source: Author

The results show that among the observed EU-27 countries for the period 2016-2020, 5 member states are technically efficient, and together they define the best practice or an efficient frontier on both DEA model. These countries are Cyprus, Estonia, Latvia, Luxembourg and Malta. The majority of countries are not technically efficient. The countries with the lowest efficiency are France, Italy and Germany. This can be explained by low environmental awareness and insufficient government instruments and regulations to promote sustainable and environmentally friendly development. In addition, these are countries with heavy industries that definitely need to change their operations to a more environmentally friendly way. Therefore, these countries must follow all the regulations and objectives of the already established European Green Deal strategy.

5. Conclusion

Nowadays, we are experiencing an increase in environmental awareness due to environmental and climate degradation. This is happening both on a global and European level. In addition, there are a number of economic instruments and government regulations to increase environmental awareness both at the individual and industrial level. One of these economic instruments are environmental taxes. They are also an important driver for sustainable and green development. As such, they have two important functions, i.e., a double dividend. The first is to change consumer behaviour towards greener and more sustainable behaviour, and the second is to generate revenue to finance expenditures. Therefore, the objective of this work was to investigate the efficiency of environmental taxes, i.e. energy taxes, pollution taxes and transport taxes in terms of sustainable development and green growth in the EU-27 member states. The DEA method was used to evaluate efficiency. In the empirical analysis, three inputs and three outputs were used to evaluate the efficiency performance of the EU-27 for the period 2016-2020. The results of the empirical analysis show that among the EU-27 countries, Cyprus, Estonia, Latvia, Luxembourg and Malta are the best performers, as they score 1. On the other hand, the countries with the lowest efficiency are France, Italy and Germany. This can be explained by the fact that these countries are very industrial and that the current regulations and economic instruments are not so efficient to support green and sustainable development.

With the launch of the European Green Deal Strategy, the European Union has taken a major step towards a greener and more sustainable Europe. Moreover, this strategy also supports the Sustainable Development Goals (United Nations, 2016). In order to have financial resources to support the desired goals, the EU has allocated a significant amount of money, more than 1 billion euros. Most of this funding comes from tax revenues, with environmental taxes accounting for about 2.2 percent of GDP at the EU level. Among environmental taxes, energy taxes are the most important. They account for more than three-quarters of EU environmental tax revenues in 2021. Moreover, this type of tax is based on the Energy Tax Directive, which imposes minimum tax rates on energy products (fuels, heating fuels, and electricity). Since the empirical analysis has shown that environmental efficiency varies widely across EU member states, it is recommended for further research to examine environmental taxation policies in more detail and over a longer period of time. Furthermore, it would be interesting to analyse the impact of environmental taxes on CO₂ emissions of the different sectors. The limitations of this work lie in the methodology, as DEA has its own limitations, and the lack of available data to apply different variables. The contribution of the paper to the scientific literature lies in the presentation of the current situation of environmental taxes in the EU-27 and in the empirical analysis focusing on the efficiency of different types of environmental taxes to promote sustainable and green growth in the EU.

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A scientific paper

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SPECIFICS OF FINANCIAL PERFORMANCE INDICATORS: A CASE OF LARGE CROATIAN ENTITIES

ABSTRACT

Next to financial stability, financial performance represents a requirement to ensure long-term business operations and fulfilment of the going concern concept. Thus, financial performance measures represent a crucial criterion in strategic planning and business decision-making processes. Choosing a specific key performance indicator as a target indicator and measure of goal achievement shows the importance of knowing how to calculate and understand its meaning and the impact of individual accounting policies and assessments on its value. Often, key performance indicators are taken to measure whether bonuses will be paid to management and whether they have met business expectations. However, to fulfil the set goals measured by a particular indicator, potentially distorted conclusions can be reached if the stakeholders need to understand them. In that context, an essential premise of using any key performance indicator in different or similar circumstances requires understanding its meaning. Numerous financial performance indicators are calculated as absolute or relative measures. Some of the most used include return on assets (ROA) and return on equity (ROE) which are often considered fundamental KPIs used in the DuPont system of ratios. Both of them are relative measures. Nevertheless, management and stakeholders usually prefer using absolute measures such as earnings before interest and taxes (EBIT), earnings before interest, taxes, depreciation and amortisation (EBITDA), often known as operating income, cash flows from operations (CFO), or free cash flows to firm (FCFF). The question is not which of those is most accurate or correct. The question is which one to use on particular occasions. Thus, this paper investigated the specifics of large Croatian entities' most important key performance indicators from 2010-2020. To analyse the data, we used panel data analysis. Results indicate that different profit-based financial performance measures have different information values. Thus, the indicator that captures the greatest features of different business aspects is net profit and the fewest traditional business aspect, free cash flows to the firm.

Key words: *financial performance, financial ratios, key performance indicators, ROA, ROE.*

1. Introduction

Nowadays, companies, more than ever before, face unpredictable, uncertain and constantly changing business conditions and cope with globalization and accelerating digitalization processes. In such an environment, management must act agile to overcome versatile impacts. Effective strategy harnesses organisational capabilities to exploit opportunities and limit environmental threats (Henry, 2018, p. 5). A company's set of actions to outperform rivals is its strategy, and achieving superior performance gives them a competitive advantage (Hill and Jonas, 2012, p. 2). "Superior performance is typically thought of in terms of one company's profitability relative to that of other companies in the same or a similar kind of business or

industry” (Hill and Jonas, 2012, p. 2). Managers analyse a position, formulate and implement flexible strategies, making strategic management (Henry, 2018; Macmillan & Tampoe, 2001). Strategic management involves strategy formulation, content, and implementation. Without implementation, the strategy is useless. According to Adler (2022), strategy implementation is a part of performance management, an interdisciplinary field involving strategic management, organisational behaviour, organisational theory, and management accounting (Adler, 2022, pp. 1-4).

Strategic management must align financial and strategic objectives, according to David (2011). Financial objectives can be reached by prioritising strategic objectives that enhance competitiveness and market strength. Objectives should be specific, measurable, realistic, challenging, hierarchical, and attainable with a timeline. Without long-term objectives, organisations would drift aimlessly toward some unknown end (David, 2011, p. 134). Long-term objectives drive annual and short-term objectives, i.e., business objectives. Performance measurements evaluate the achievement of strategic and financial goals at corporate, division, and function levels (David, 2011, 134). Adler (2022) emphasises that performance management leans heavily on a financial performance measurement system. Financial performance measurements are key to performance management, ensuring fiduciary responsibility to shareholders (Henry, 2018). The manager translates strategies into results using a performance measurement system that collects and reports relevant data (Adler, 2022, p. 143).

Thus, performance measurements represent a quantitative or qualitative expression of long-term and short-term objectives and achievements. Most often, performance measurements are classified as financial or non-financial performance measurements (Nuhu, Baird, and Su, 2022; Adler, 2022; Asker and Kiraci, 2022; Maqbool, Deng, and Ashfaq, 2020; Roberts, Neumann, and Cauvin, 2017; Kumar, 2016; Krishnan and Ramasamy, 2011; Dossi and Patelli, 2010; Ahrens and Chapman, 2005). Additionally, Adler (2022) says that performance measurement systems that rely upon a combination of financial and non-financial performance measures are termed hybrid systems, where a balanced scorecard (BSC) represents the most used hybrid system (Adler, 2022, p. 156).

Non-financial performance measures have four dimensions: quality, lead time, resource use, and people development (Adler, 2022, pp. 154-155). The need for these measures is driven by changes in businesses, CEOs, and firm competition (Adler, 2022, p. 153). However, Ittner and Larcker (2005, pp. 97-98) suggest that non-financial measures, such as management leadership and supplier relations, can be challenging to assess as they are more abstract, qualitative, and ambiguous than financial performance.

According to Epstein (2010), sustainable businesses achieve social and financial excellence, but managing both is challenging. Corporate incentives are often focused on short-term financial goals, making social and financial issues discretionary and creating dilemmas for managers (Epstein, 2010, p. 5). Internal factors, such as leadership, culture, and people, are crucial determinants for effectively managing trade-offs among social, environmental, and financial performances (Epstein, 2010, p. 11).

A manager’s success relies on strategic comprehension of finance and accounting and the ability to link finance to business strategy (Marsh, 2012, p. 1), making financial management essential for sustainable corporations. Thus, financial management includes planning, fundraising, profitability analysis, cash control and accounting relating to profits and taxes. A financial manager oversees these functions (Broyles, 2003, p. 5). The CFO manages a

company's finances, including financial reporting and achieving long-term objectives. "Strategic data analysis can help uncover the underlying drivers of strategic success." (Ittner and Larcker, 2005, p. 95) In that context, financial performance measures have a crucial role. They are usually related to profitability, productivity, investment, and economic progress, helping to identify a company's strengths and weaknesses (Asker and Kiraci, 2022, p. 73). Aureli (2010) highlights that management control systems mainly focus on accounting information produced primarily to measure cost efficiency and financial performance while ignoring external aspects of the business (Aureli, 2010, p. 84).

Asaoka (2022) stress the importance of financial performance measures, including return on assets (ROA), return on equity (ROE), and return on invested capital (ROIC), for assessing company-level financial performance. Additional measures such as free cash flow, net present value, internal rate of return, economic profit, and return on invested capital are also significant in guiding strategic decisions (Asaoka, 2022, p. 51). Conventional comparisons of financial performance based on accounting profits or stock prices do not accurately reflect the full value created by enterprises. (Asaoka, 2022, p. 51; Liberman and Kang, 2008, p. 4). Higgins (2022) notes that the ROE is the most popular financial performance measure, evaluated through three dimensions – profit margin, asset turnover, and financial leverage. In addition, financial ratios can help analyze performance and compare industry averages or changes over time (Higgins, 2022, p. 60). Bhimani (2022) categorizes financial ratios into five groups for quantifying performance: liquidity ratios, profitability ratios, investment ratios, efficiency ratios, and capital structure ratios (Bhimani, 2022, p. 120). Profitability, growth and capital intensity determine free cash flow and value. KPIs cover financial indicators such as sales growth and earnings per share, and non-financial indicators such as product quality, safety, loyalty, satisfaction, and product promotion (Kumar, 2016, p. 4).

Accounting-based financial performance measures differ significantly from economic profit-based measures because the latter considers the cost of capital and focuses on future performance and stakeholders' expectations. These measures start with cash flows from operation to assess a company's value, with intangibles, operating, investment and financial drivers being the main value creators for shareholder wealth. Improving cash flow from operations and minimizing capital costs through optimal capital structure decisions are key to value enhancement. Higher revenues, lower costs, and reduced capital expenditure are the value drivers for increased cash flow from operations (Kumar, 2016, p. 7). Financial variables are value relevant if they have a predictable association with market equity values. Financial measures can provide value-relevant information for investors, and the components of earnings or cash flows have different implications for assessing firm value (Chen, Chang, and Fu, 2010, p. 38). Stern Stewart & Co. developed and implemented the EVA indicator (Economic Value Added). The indicator aims to reflect the enterprise's true economic profit accurately (Salaga, Bartosova, Kicova, 2015, p. 485). Economic value (EV) is a prevalent measure of shareholder value creation, while total shareholder return (TSR) or annual economic return can gauge shareholders' wealth creation. In public markets, equity investments' performance is evaluated by TSR, which is the sum of capital gains and dividends divided by the stock's purchase price (Asaoka, 2022, p. 43). However, as future cash flows are uncertain, relying on traditional accounting measures is common (Henry, 2018, p. 104).

This paper focuses on traditional measures of financial performance, which are key criteria for evaluating the achievement of long-term and short-term strategies and business objectives. The premise is that various traditional profit-based financial performance measures do not have the same informational value for users. Therefore, this paper includes a literature review of

previous case studies and studies of the various descriptive characteristics of selected traditional financial performance measures.

2. Literature Review

There exist many studies in which are investigated non-financial performance measures (Shin, Lee, and Park, 2023; Gan, Park, and Suh, 2020; Abdallah and Alnamri, 2015; Krishnan, 2011; Hussain, 2002; Cumby, 2001) as well as those studies that investigate financial and non-financial performance measures (Nuhu, Baird, and Su, 2022; Adler, 2022; Asker and Kiraci, 2022; Maqbool, Deng, and Ashfaq, 2020; Roberts, Neumann, and Cauvin, 2017; Kumar, 2016; Krishnan and Ramasamy, 2011; Dossi and Patelli, 2010; Ahrens and Chapman, 2005). Researchers who have investigated exclusively financial performance measures deal with a wide variety of measures, from traditional ones (Clinch, Tarca, and Wee, 2022; Oliver, 2013; Li, 2012) to those based on cash flows and economic profit (Petravičius and Tamošiūniene, 2014; Bayrakdaroglu, Ersoy, and Citak, 2012), or most often combination of those two (Almagtome and Abbas, 2020; Gentry and Shen, 2020; Basly and Saadi, 2020; Chen, Chang, and Fu, 2010; Carlon, Downs and Wert-Gray, 2006).

In the context of traditional financial performance measures the most important role have return on assets (ROA) or equity (ROE), and different derivations of earnings indicators as earnings before interest and taxes (EBIT) or earnings before interest, tax, amortization, and depreciation expenses (EBITDA). Financial performance measures represent significant factor in assessing credit risk by credit institutions. Oliver (2013) in his paper questioned statistical performance of credit scores and tried to validate the ability of credit risk scores that rank and predict outcomes such as fraud/non-fraud, default/non-default, late/on-time payments, or borrower response/non-response to offers investigating traditional decision model used to derive an optimal cut-off policy to maximize expected ROA (return on assets) or ROE (return on equity) for the lending process is well documented in the credit scoring literature. "In summary, we encourage lenders, lending institutions and financial advisors to place much more emphasis than they have on the evaluation of financial benefits that directly influence good decisions and business performance in retail credit scoring." (Oliver, 2013, p. 184) The author concluded that there is much more factor, besides focusing exclusively on statistical performance of the scores themselves important in assessing credit risk. Furthermore, Li (2012) investigated how performance measures are defined in major earnings-based financial covenants in loan contracts to shed light on the economic rationales underlying the contractual use of performance. The author found that for an earnings-based covenant earnings before interest and tax expenses (EBIT) and even the bottom-line net income is more useful in explaining credit risk compared to earnings before interest, tax, amortization, and depreciation expenses (EBITDA). Opposed to that, Li (2012) concluded that EBITDA is less sensitive to investment activities, measured with the amount of capital expenditure, than a performance measure calculated after D&A expenses, such as net income and EBIT (Li, 2012, p. 1176). On the other hand, Clinch, Tarca, and Wee (2022) investigated significance of applying certain financial reporting standards for the level of chosen financial performance measures. They analysed the largest 200 companies in Australia, France, Germany, Hong Kong, Italy, Singapore, Sweden, and the United Kingdom for the years 2005, 2008, 2011 and 2013. Authors applied logistic regression where dependent variable in the model is the log-odds ratio and p is the probability that the firm makes a non-IFRS disclosure, and independent are mix of various financial indicators as profitability measured by ROA, variability in cash flows and net income over the previous three years, leverage measured by debt-to-assets ratio, market to book value proxy, and size as log of total

assets. Authors found that leverage and volatility of income are the key factors explaining non-IFRS reporting practice. They concluded that national reporting traditions and practices matter as the country fixed effects subsume the significance of many firm attributes in our models (Clinch, Tarca, and Wee, 2022, p. 27).

When investigating financial performance measures based on economic profit, authors focus their studies on economic value added (EVA), market value added (MVA), cash value added (CVA). Specific to the application of these financial performance measures is the request for information on the cost of capital. The disadvantage of this is the fact that the cost of capital is available only for the largest listed companies, so in this context the question of how to apply such measures in small and private entities is justified. The biggest challenge in this context is determining the cost of equity capital, i.e., the expected returns from the company owner. However, Petravičius and Tamošiūniene (2014) gave review of chosen value added measures – Economic Value Added, Cash Flow Return on Investment, Market Value Added, Cash Value Added, indicating that traditional accounting numbers have been augmented by ‘new’ measures which are focused on creating shareholder value. Authors emphasize that those measures may be considered both ‘backward-looking’ measure of managerial performance and a ‘forward looking’ measure of corporate value based on present value of anticipated cash flows (Petravičius and Tamošiūniene, 2014, p. 194). Finally, authors conclude that “Cost of capital is central to the shareholder value approach. Only when value creation exceeds the risk – the adjusted costs of capital is added value created (Petravičius and Tamošiūniene, 2014, p. 201). Bayrakdaroglu, Ersoy, and Citak (2012) were investigating the relationship of value-based performance measures – economic value added (EVA), market value added (MVA) and cash value added (CVA) – with corporate governance using data on 41 corporations listed on the Istanbul Stock Exchange-100 Index covering 1998-2007 period. Explanatory variables used in the model were CEO-duality, size of the board of directors, ownership concentration, manager ownership, foreign ownership, and as a control variable leverage ratio and firm size were used. To obtain the results, authors applied fixed and random effect model depending on the Hausman test results for three different models (EVA, MVA, and CVA as dependent variables). Authors concluded that ownership concentration can be said to have significant relationships with performance measures except for MVA, but contrary to theoretical expectations, manager ownership is not found to be an important variable in increasing corporate performance within the context of value-based management, however, foreign ownership is found to increase corporate performance in terms of EVA and to decrease corporate performance in terms of MVA.” (Bayrakdaroglu, Ersoy, and Citak, 2012, p. 236)

As pointed out earlier, the greatest number of authors investigates both traditional and value based financial performance measures. Thus, Gentry and Shen (2020) studied relationship between accounting based financial performance measures (ROA, ROE, ROS, and ROI) and stock market performance measured using market-to-book value ratio (MTB) and market return (Gentry and Shen, 2020, p. 31) for all publicly traded firms listed in the U.S. that conform to the U.S. Generally Accepted Accounting Principles (GAAP), excluding foreign firms that were listed through American Depositary Receipt (ADR) over a 48-year period from 1961 to 2008, by applying correlation analysis on the one side and fixed-effects regression analyses with a set of fiscal year dummy variables to control for any potential influence of time on the relationship between accounting profitability and market performance on the other (Gentry and Shen, 2020, pp. 31-32). Their paper’s “findings suggest that it is inappropriate to combine accounting and market measures into a single financial performance measure.” (Gentry and Shen, 2020, p. 38) According to authors conclusions “study provides clear evidence showing that firm financial performance is not a single unidimensional construct and that accounting profitability and

market performance represent distinct dimensions that have little empirical overlap.” (Gentry and Shen, 2020, p. 38) Lastly, they concluded that, next to accounting profitability and market performance which only reflect the financial aspect of a company performance, other aspect such as growth, operational effectiveness, corporate reputation, customer knowledge, business processes, and social performance shall be considered and taken into account. “Instead, researchers should always clearly define which aspect of firm performance they intend to study first, and then develop and test theories and hypotheses about that specific aspect of firm performance” (Gentry and Shen, 2020, p. 39).

Basly and Saadi (2020) investigated if value relevance of earnings is related to the nature of the firm (family firm or non-family firm) and which financial performance measure is more confident for investment decision. They analysed 349 firms quoted on the Paris stock market over the period 2009-2012 by using panel regression on Ohlson model (1995). Authors found that, compared to net income, the comprehensive income seems to be the performance accounting measure with the less value relevant information content for investors. Additionally, “there is evidence that firm ownership has an impact on the value relevance of earnings to investors as family firms seem to convey more relevant earnings to investors. Independently of ownership degree, French listed family firms convey to investors more value relevant accounting earnings than non-family firms” (Basly and Saadi, 2020, p. 18). “Third, it was found that moderately-controlled family firms exhibit better earnings’ value relevance than highly-controlled family firms” (Basly and Saadi, 2020, p. 19)

Almagtome and Abbas (2020) tested the relevance of the value of financial performance metrics (operating income, total revenue and dividend) that can provide investors with useful information on the assessment of corporate performance. They used financial data for a sample of 33 banks registered on the Iraqi Stock Exchange for a period of 8 years (2010-2017) with a total of 264 observations. The results indicate that the indicators of operating income, total revenues and dividends are value-relevant information. The results of the comparison between the financial performance measures show that the correlation between the operating income index with the stock prices, as well as with the total shares traded was higher compared to other performance indicators (total revenue and dividend dividend). (...) This indicates that reporting financial reporting about financial performance indicators has a fundamental effect in determining stock prices.” (Almagtome and Abbas, 2020, p. 6789)

Chen, Chang, and Fu (2010) investigated publicly listed information electronics companies from the Taiwan Stock Exchange (TSE) and Gre Tai SecuritiesMarket (Taiwan OTC market) over twelve years from 1997 to 2008, and their sample included 4,862 firm-year observation. To examine the relationship between equity market value and the various financial performance measures in each life cycle stage they used Ohlson model (1995) (Chen, Chang, and Fu, 2010, p. 37). Authors concluded that “R&D and ANOI are more value relevant in the growth stage. In addition, OI is also more value-relevant in the mature stage, but CFO has almost the same value-relevant in all stages. In the decline stage, CFF and CFI can convey more information in the decline stage than in the growth stage, but is not more than in the mature stage.” (Chen, Chang, and Fu, 2010, p. 56)

Carlton, Downs and Wert-Gray (2006) had a different approach in their paper. Authors point out that researchers search for empirical links between various compensation strategies and improved performance, and that they find inconsistent evidence of any links. “This reliance on quantitative measures has become an organizational fetish” (Carlton, Downs and Wert-Gray, 2006, p. 475). “By using financial performance measures to make compensation decisions, it seems that practitioners and researchers neglect the subjective aspects of the production and use

of rational data. (...) Our empirical evidence shows a differential role of financial performance measures across life cycle stages, and highlights the role of cash flows and various earnings-related items in explaining firm market value.” (Carlson, Downs and Wert-Gray, 2006, p. 476) The fact that all the papers in conducted literature review are completely different, i.e., they include the research of different variables with different goals, confirms the wide possibilities and the need to apply the most diverse financial performance measures depending on the observed objective. Thus, in this paper we will try to confirm different value of chosen financial performance measures in different occasion.

3. Methodology, sample, and research results

The literature review results indicate that no single financial performance measurement fitted for all scenarios and business operations criteria evaluation. Consequently, this research focuses on the crucial business operation segments related to traditional financial performance. Those financial performance criteria include liquidity, solvency, turnover and profit margin, efficiency, and profitability of business operations.

Sustainable business and applying the going concern concept implies effective management with all the mentioned criteria. However, management at the highest level and stakeholders focus to the greatest extent on those financial performance measures that relate to a certain degree of profitability. In addition, measurements of economic profit rely on the approximation of cash flows based on some of the profit derivatives from the income statement, such as EBITDA, NOPAT, etc. In this context, it is essential to know which measure of profitability to consider when evaluating different objectives.

The purpose of this paper is not to methodologically explain the meaning of particular financial performance measurements but to show that there is no universal financial performance measurement fitted to evaluate different financial criteria. Thus, the premise is that one size doesn't fit all. Therefore, the paper aims to investigate various explanatory features of chosen traditional financial performance measurements. Following the given objective, we developed research hypotheses:

- Most of the chosen earning-based ratios are appropriate measures of overall business efficiency measured by economy ratios.
- Operating earnings are significantly related to capital expenditures.
- Solvency levels have a significant effect on net profit.
- The level of business activity positively affects most traditional financial performance measures.

We gather data for the most significant Croatian entities to study the research objective and test the hypotheses. The sample includes items from consolidated annual financial statements of large groups and covers years from 2010 to 2020. The sample consists of 321 large groups and 1,839 observations. The data is in the form of an unbalanced panel.

To test research hypotheses, we calculated the nine most used earnings-based traditional financial performance measures: net profit (NetPR), gross profit (PrePR), earnings before interest and taxes (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), net operating profit after tax (NOPAT), operating cash flow (CFO), free cash flow to the firm (FCFF), return on equity (ROE), and return on total assets (ROA). Thus, the analysis

will include nine models in which given measures are the dependent variable. First, as independent variables, we choose the current ratio (CurLiq) and the share of accruals in total assets (AccrualsRat) as liquidity measures, debt ratio (DebtRat), debt-to-equity ratio (DERatio), and interest coverage ratio (IntCov) as solvency ratios, then cash conversion cycle (CCC) and total assets turnover (TATO) as business activity measure, overall economy (eTotal) and operating economy (eOA) as efficiency measures, and finally capital expenditures (CAPEX) and the ratio of equity change (dCR_ych).

Table 1: Descriptive statistics of independent variables

	Mean	Standard Deviation	Median	Minimum	Maximum
CurLiq	1.6999	2.7346	1.1800	0.0300	70.4000
DebtRat	0.6190	0.3787	0.5700	0.0200	5.5100
DERatio	1.8496	33.9433	1.0700	-910.2300	1026.2800
IntCov	589.5083	9720.4243	2.2600	-6234.6700	286730.0900
AccrualsRat	0.0498	0.1000	0.0149	0.0000	0.7509
CCC	54.6460	45.8006	46.4147	-25.4587	491.8659
TATO	0.9510	0.7548	0.8100	0.0000	12.6200
eTotal	1.0278	0.1974	1.0200	0.0900	5.9800
eOA	1.0468	0.2042	1.0400	0.0600	6.0500
sCAPEX	0.0395	0.1158	0.0353	-1.7304	0.6495

Source: Author

Table 1 shows descriptive statistics for independent variables. On average, the large groups in Croatia are liquid, i.e., they can cover current liabilities with current assets 1.7 times (CurLiq). On average, they are financing more than 60% of their assets by debt (DebtRat); however, a high level of interest coverage ratio (IntCov) indicates favourable use of financial leverage, which we confirmed by the relationship between ROA and ROE, i.e., $ROE > ROA$. Accruals (AccrualsRat) aren't material in total assets; on average, they make 5% of total assets, both in assets and liabilities. On average, the cash conversion cycle (CCC) lasts 55 days, meaning they have to finance a gap of 55 days between paying and receiving money. Large groups in Croatia, on average, make 0.95 money units of total revenues by one money unit of total assets (TATO). Entities are, on average efficient; their total revenues are, on average, 2.8% higher than total expenses (eTotal), and operating revenues are, on average, 4.7% higher than operating expenses (eOA). Yearly, their capital expenditures (sCAPEX) make, on average, 3.95% of total assets.

Table 2: Descriptive statistics of dependent variables

	Mean	Standard Deviation	Median	Minimum	Maximum
s_NetPR	0.0115	0.2764	0.0169	-2.2219	10.5057
s_PrePR	0.0166	0.2775	0.0201	-2.1870	10.5057
s_EBIT	0.0383	0.2739	0.0412	-2.1773	10.5388
s_EBITDA	0.0820	0.2756	0.0797	-2.1394	10.5812
s_CFO	0.0718	0.2967	0.0667	-1.7862	10.5481
s_NOPAT	0.0229	0.2164	0.0256	-1.7959	8.3641
s_FCFE	0.0226	0.2201	0.0229	-1.9953	5.6728

	Mean	Standard Deviation	Median	Minimum	Maximum
ROA	0.0332	0.2730	0.0400	-2.2100	10.5400
ROE	0.0420	4.5775	0.0500	-128.7200	138.7700

Source: Author

Table 2 shows descriptive statistics of dependent variables. To obtain more robust results, we scaled all dependent variables (except ROA and ROE) by total assets. In this way, we increased explained variability observed in dependent variables per each model. Thus, all indicators, on average, show positive financial results (there is no negative average or median value). However, minimum values indicate cases that generated losses over the years. On average, gross profit (s_PrePR) is 1.66% of total assets, and it is 9.84 percentage points higher than average net profit (s_NetPR). The difference makes the income tax burden of entities measured in total assets. Furthermore, the average s_EBITDA is 4.37 percentage points higher than s_EBIT, indicating significant depreciation and amortization costs. On average, free cash flows (FCFF) to firms make 2.26% of total assets, which is higher than the net and gross profit. Finally, the return on assets (ROA) is, on average, 3.32%, and the return on equity is 4.20%.

Given that our sample makes panel data, we used the appropriate model of panel data analysis to obtain results. Thus, we tested if pooled ordinary least square (pooled OLS), fixed-effects (FE), or random-effects (RE) model is most appropriate. We first used the Hausman test to compare FE and RE models. The final results cover 261 large groups with 1,455 observations. The results indicate that the difference is significant, i.e. p-values are less than 0.05 for all dependent variables, which makes FE model appropriate. Then, by applying Breusch and Pagan Lagrangian multiplier test, we tested if random effects were present. Heteroskedasticity, which we tested by the Modified Wald test, exists in every case (p-value is less than 0.05). Finally, the Wooldridge test for autocorrelation in panel data showed the existence of autocorrelation in four cases; ROA (p-value of 0.0450), NetPR (p-value of 0.0310), PrePR (p-value of 0.0442), and CFO (p-value of 0.0347). We used robust or clustered robust standard error to deal with heteroskedasticity and autocorrelation problems.

Table 3: Results of panel data analysis – part 1

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>		<i>Model 4</i>	
	ROA		ROE		s_NetPR		s_PrePR	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
CurLiq	0.001	0.553	0.010	0.438	0.002	0.500	0.002	0.434
DebtRat	-0.067	0.073	-0.112	0.652	-0.091	0.008	-0.090	0.007
DERatio	0.000	0.269	-0.129	0.000	0.000	0.175	0.000	0.174
IntCov	0.000	0.168	0.000	0.134	0.000	0.174	0.000	0.202
AccrualsRat	-0.085	0.444	0.899	0.681	-0.068	0.531	-0.067	0.532
CCC	0.002	0.001	0.004	0.153	0.001	0.005	0.001	0.005
TATO	0.358	0.000	0.779	0.179	0.351	0.000	0.350	0.000
sCAPEX	0.050	0.112	0.147	0.712	0.065	0.037	0.063	0.044
eTotal	0.380	0.000	0.995	0.261	0.479	0.000	0.500	0.000
eOA	0.571	0.000	-0.222	0.718	0.482	0.000	0.467	0.000
dCR_ych	0.000	0.096	0.000	0.751	0.000	0.090	0.000	0.083
lnTA	0.047	0.070	0.499	0.115	0.041	0.102	0.041	0.094

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>		<i>Model 4</i>	
	ROA		ROE		s_NetPR		s_PrePR	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
_cons	-2.314	0.000	-11.760	0.072	-2.181	0.000	-2.190	0.000
R2 within		0.875		0.916		0.875		0.879
R2 between		0.246		0.602		0.236		0.277
R2 overall		0.540		0.896		0.549		0.563
corr(u_i, Xb)		-0.632		-0.134		-0.622		-0.618
rho		0.854		0.284		0.850		0.848
Hausman test		0.000		0.000		0.000		0.000
Lagrangian multiplier		0.000		1.000		0.000		0.000
Modified Wald test		0.000		0.000		0.000		0.000
Wooldridge test		0.045		0.732		0.031		0.044

Source: Author

The obtained results confirm that all nine models are statistically significant and explain a meaningful proportion of observed independent variable variability (Table 3 and 4). Thus, seven of nine models explain more than 50% of variability, from 53.9% in the case of EBITDA to 89.60% in the ROE model. Conversely, the smallest proportion of explained variability is found in the FCF model (21.40%), followed by the CFO model (48.8%), both cash flow-based variables.

Table 4: Results of panel data analysis – part 1

	<i>Model 5</i>		<i>Model 6</i>		<i>Model 7</i>		<i>Model 8</i>		<i>Model 9</i>	
	s_EBIT		s_EBITDA		s_CFO		s_NOPAT		s_FCF	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
CurLiq	0.002	0.488	0.002	0.511	0.001	0.530	0.001	0.446	-0.016	0.011
DebtRat	-0.066	0.073	-0.066	0.071	-0.069	0.060	-0.060	0.029	0.033	0.640
DERatio	0.000	0.269	0.000	0.419	0.000	0.398	0.000	0.262	0.000	0.899
IntCov	0.000	0.196	0.000	0.255	0.000	0.214	0.000	0.269	0.000	0.227
AccrualsRat	-0.085	0.444	-0.088	0.431	-0.082	0.483	-0.024	0.776	0.011	0.949
CCC	0.002	0.001	0.001	0.002	0.001	0.006	0.001	0.000	0.002	0.000
TATO	0.357	0.000	0.365	0.000	0.390	0.000	0.286	0.000	0.254	0.000
sCAPEX	0.047	0.127	0.042	0.162	0.048	0.155	0.051	0.092	-0.687	0.000
eTotal	0.401	0.000	0.392	0.000	0.439	0.000	0.054	0.569	-0.233	0.192
eOA	0.557	0.000	0.547	0.000	0.421	0.000	0.695	0.000	0.554	0.002
dCR_ych	0.000	0.089	0.000	0.090	0.000	0.136	0.000	0.088	0.000	0.718
lnTA	0.048	0.064	0.045	0.079	0.042	0.101	0.030	0.121	0.019	0.512
_cons	-2.324	0.000	-2.216	0.000	-2.102	0.000	-1.688	0.000	-1.020	0.125
R2 within		0.879		0.878		0.865		0.876		0.506
R2 between		0.288		0.243		0.171		0.275		0.013
R2 overall		0.554		0.539		0.488		0.544		0.214
corr(u_i, Xb)		-0.629		-0.632		-0.664		-0.635		-0.717
rho		0.853		0.859		0.863		0.856		0.659
Hausman test		0.000		0.000		0.000		0.000		0.000

	Model 5		Model 6		Model 7		Model 8		Model 9	
	s_EBIT		s_EBITDA		s_CFO		s_NOPAT		s_FCFE	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Lagrangian multiplier		0.000		0.000		0.000		0.000		1.000
Modified Wald test		0.000		0.000		0.000		0.000		0.000
Wooldridge test		0.062		0.054		0.035		0.081		0.428

Source: Author

Every designed model shows a certain number of statistically significant independent variables. Thus, in the case of the ROA model, the most important is the operating economy (eOA) - if the ratio of operating revenues and operating expenses increases by 1, ROA will increase by 0.571. Our results indicate that liquidity and solvency are not statistically significant for return on total assets in the case of large Croatian groups. The largest explanatory power by the number of statistically significant independent variables has net profit (NetPR) and gross profit (PrePR). Both models have six significant variables; solvency ratio (DebtRat), activity indicators (CCC and TATO), efficiency measures (eTotal and eOA), and capital expenditures (CAPEX). Thus, we concluded that net and gross profit captures the most diverse characteristics of observed financial criteria. Therefore, they are most sensible for changes in different business aspects. On the other side, in all models (except ROE), measures of the overall business efficiency measured by economy ratios (eTotal and eOA) are statistically significant. Considering that, we accepted our first research hypothesis (H1). Our second research hypothesis focuses on capital expenditures as a significant aspect of operating earnings. Under operating profits, we considered EBIT, EBITDA, NOPAT, and approximation of cash flows - CFO and FCFE. According to obtained results, CAPEX is a statistically significant variable only in the case of the FCFE model. By that, we didn't accept the hypothesis that operating earnings are significantly related to capital expenditures (H2). Conversely, the most and only significant variable for return on equity (ROE) is the debt-to-equity ratio, often called the financial leverage ratio. According to the results, if the debt-to-equity ratio increases by one, the ROE will decrease by 0.129; considering this and respecting the fact that DebtRat is significant in the net profit model, we can accept the research hypothesis that solvency levels have a significant effect on the net profit (H3). Finally, by the last research hypothesis, we tested if the level of business activity positively affects most traditional financial performance measures. In the context of business activity, we considered CCC and TATO ratios. Results indicate that the cash conversion cycle and total assets turnover significantly affect all analysed traditional financial performance measures (except ROE). Taking that into account, we accepted the hypothesis (H4).

4. Conclusion

Entities must engage in strategic planning and performance evaluation routines to safeguard their business operations and viability. The concept of going concern is a crucial consideration in this regard. Performance evaluation is linked to defined objectives, accomplishments, and managerial compensation structures. The assessment of performance typically comprises financial as well as non-financial parameters. Therefore, selecting suitable performance measures to evaluate entities' achievements is a significant component of the comprehensive assessment process. In this context, comprehending the significance and utility of the selected indicators is imperative. Various financial performance metrics possess distinct semantic connotations. Consequently, the selection of financial performance indicators ought to rely on

something other than their level of recognition, but rather should be customised to suit each entity's unique characteristics and requirements.

This study examined the attributes of conventional metrics for financial performance, which are computable by using information from annual financial statements. Hence, confining the study solely to traditional financial metrics constitutes a limitation in this research. However, their simplicity in calculation makes them simple to apply. Additionally, they are still most widely used for evaluating the achievement of long-term and short-term strategies and business objectives. Nevertheless, stakeholders must be aware of the information provided by chosen indicators. For example, they must know that positive EBIT does not mean the entity has realised profit for their owners. The net profit can still be negative, although the entity realised significant operating profit.

In that context, the central premise of this research is that 'one size doesn't fit all', i.e., various traditional profit-based financial performance measures do not have the same informational value. However, the limitation of this research is that it focuses only on finding differences and similarities between various traditional financial performance measures and does not explain the meaning of those measures. Thus, we investigated various explanatory features of chosen traditional financial performance measurements using financial data from consolidated annual financial statements for large Croatian groups from 2010-2020. Indicators covered by the research are net profit (NetPR), gross profit (PrePR), earnings before interest and taxes (EBIT), earnings before interest, taxes, depreciation and amortisation (EBITDA), net operating profit after tax (NOPAT), operating cash flow (CFO), free cash flow to the firm (FCFF), return on equity (ROE), and return on total assets (ROA). Tested financial performance criteria are liquidity, solvency, activity, and efficiency, including capital expenditures and the ratio of equity change as growth indicators.

We designed nine models to conduct the research and applied fixed effects panel data analysis. The results confirm the different explanatory power of various traditional financial performance measures. In words of financial criteria, the traditional financial performance indicator most related to liquidity (CurLiq) and capital expenditures (CAPEX) is free cash flows to the firm (FCFF). The relation is negative, meaning an increase in liquidity or investments will decrease FCFF. On the other hand, if in focus is financial stability and adequate solvency (DERatio), entities shall observe a return on equity (ROE) or net operating profit after taxes (NOPAT). Again, the relationship is negative. As expected, almost all indicators are beneficial in the context of total assets turnover (TATO), cash conversion cycle (CCC), and economy ratios (eTotal and eOA). Finally, although it is often considered too conservative and not as informative as other indicators, net profit (NetPR) and gross profit (PrePR) show the greatest explanatory power for various business criteria.

Further studies on the explanatory power of various traditional financial performance indicators could include interviewing or surveying managers in diverse fields to investigate their understanding of those measures and determine which measures are most often used and for which purposes. In this way, it will be possible to relate the entity's major objectives with the KPIs used and determine whether appropriate indicators are applied regarding the objectives. Additionally, further studies could include value-based financial performance measures and research differences in their explanatory power related to chosen financial performance criteria.

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A scientific paper

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POLITICAL-ADMINISTRATIVE, SOCIAL AND ECONOMIC CIRCUMSTANCES IN THE AREA OF THE CITY OF OSIJEK FROM 1918 TO 1929

ABSTRACT

In this research, we intend to analyze the functioning of the administration of the city of Osijek in the period from 1918 to 1929, that is, the role of the city in personal, social and economic life of its citizens. At the end of the First World War and 1918 Osijek had a position as a city-county within the State of Slovenes, Croats and Serbs created on October 29th 1918, and by the founding of the Kingdom of Serbs, Croats and Slovenes on December 1st of the same year, Osijek gradually began to lose the position it had in the Habsburg Monarchy and in the Croatian-Hungarian State. Accordingly, for the purpose of a more extensive review and better understanding, we consider it is necessary to analyze in more detail the general and special regulations (provisions) that were in this period related to the activities of the Osijek city administration. The analysis of the regulations that were valid for Croatia and Slavonia should indicate the framework of the development and functioning of the city administration with regard to the dynamics of social and especially political changes that had an impact on local self-government. The minutes of the city council and related documents of the city of Osijek give insight into the list of activities carried out by the city administration as regards managing personal, social and economic life. The aim of the paper is to point to the state of the local administration and provide a comprehensive description of the city local politics, economy and culture.

Key words: *city administration, local self-government, local politic, economy, culture, Osijek.*

1. Theoretical and methodological framework

In researching the relationship between the central state administration and local government, i.e., between central and local bodies, and in researching cases of changes at the state level, as well as political, economic, and cultural processes and their impact on local government, the neo-institutionalist approach, or its derivative, historical institutionalism, proves to be appropriate. It captures all the complexity of the relationship in the study of local self-government, in this case the city of Osijek, and the historical context; that is, it enables the assessment and explanation of various contributions (mostly political) to the changes made or no changes. In this context, the impact of state political processes on local administration is analyzed, along with why local administration is (or is not) changing significantly. The historical characteristics of political and social systems are crucial in the analysis of the development of local self-government. Accordingly, historical institutionalism focuses on the historical dynamics of political processes and institutional development and, at the same time,

studies how institutions were created and how they were incorporated into concrete time processes.¹

2. Introduction

After the collapse of the Austro-Hungarian Monarchy in 1918, a joint Yugoslav state was created. Before the unification of the Yugoslav countries, the State of Slovenes, Croats and Serbs, represented by the National Council of SHS in Zagreb, and the Kingdom of Serbia, headed by the monarch King Peter I i.e. Regent Alexander Karađorđević were active in the largest part of the ethnic territory of the Yugoslav peoples. The unification took place after negotiations between the delegation of the National Council and Regent Alexander, who on 1 December 1918 in Belgrade proclaimed in the name of the ailing King Peter I, the unification of Serbia with the lands of the State of Slovenes, Croats and Serbs into a single Kingdom of Serbs, Croats and Slovenes (Šišić, 1920, 282). With this formal act, which bears all the characteristics of a constitutional act, the Yugoslav state was created.

In 1918 at the end of World War I, Osijek was a town-county within the State of Slovenes, Croats and Serbs that was created on 29 October 1918. With the creation of the Kingdom of Serbs, Croats and Slovenes on 1 December of the same year by the unification of the State of Slovenes, Croats and of the Serbs and the Kingdom of Serbia and Montenegro, Osijek started gradually losing the significance it had in the Habsburg Monarchy and in the Croatian-Hungarian state union (Vrbošić, 1996, 279-282). Namely, immediately after the creation of the Kingdom of SHS, there was a time of economic instability, scarcity and social turmoil. In those turbulent months after the establishment of the State of Slovenes, Croats and Serbs and the Kingdom of SHS, the government was also faced with a problem of Green Cadre (*zeleni kadar*). The Green Cadre (*zeleni kadar*), a group of army deserters and other radicalized persons, participated in years of collective banditry in Croatia-Slavonia (Pejić, 2020, 188). Within its borders, the new state comprised countries with different economic and social relations established in the course of their earlier development as constituent within other powerful states. These emerging opportunities required a unique economic system functioning on the entire territory of the new state, and this system was being built gradually with great difficulties (Karaman, 1991, 254).

After 1918, the Osijek's Economic Spheres had to adapt their activities to the new circumstances. Important centres of the former Austro-Hungarian Monarchy, such as Budapest, Pécs, Villány, Barcs, Graz, Vienna and other cities, with which they previously had strong internal trade, finance or industry links, now found themselves on the other side of the state border. At the same time, the foreign territories of Serbia, Montenegro and Macedonia became internal territories (Bičanić, 1967, 81-111). In endeavour to organize a new state after the collapse of the Austro-Hungarian Monarchy, it was necessary to resolve the issues related to the transitional economy, trade agreements with neighbouring countries, as well as issues related to tax, transport, customs, finances and other. These issues directly affected the interests

¹ See: Lalić-Novak, G., Pravni i institucionalni aspekti azila, doktorski rad, Pravni fakultet Sveučilišta u Zagrebu, Zagreb, 2012., pp. 15-31; Peters, G., Institucionalna teorija u političkoj znanosti. Novi institucionalizam, Zagreb, 2007., pp. 73-80.

of businesspersons in Osijek.²

At the beginning of 1919, a plenary session was held in the Chamber of Commerce and Crafts in Osijek regarding the question of deconstructing Croatia's autonomy in the field of industry, trade, and consumption. Based on social conditions in the Kingdom of SHS, the public and economic conditions for Croatia in general, and in particular for Zagreb and Osijek were unfavourable. In this regard on 1 March 1919 the request was made to confer the previously maintained competences in the area of industry, crafts, trade and consumption to the Croatian government, because the situation already indicated an economic stagnation with serious consequences. Namely, Croatia's autonomy to safeguard the development of crafts was abolished. Through centralization, the state government hindered the development of crafts, especially in Croatia where the craftsmen population prevailed.³

This complex economic situation was accompanied by political disputes. With the creation of the Kingdom of SHS, the Croatian-Serbian coalition collapsed, although it had been a strong political option before World War I. Croatian political circles wished for stronger political ties with the Serbs, but based on complete political, legal, economic, national, cultural and other fields of equality. On the other hand, the Serbian political elite required a new state territory. In view of this, Josip Vrbošić states as follows: "From that moment, Croatian-Serbian relations became tolerable only in the time of totalitarian ruling systems." (Vrbošić, 1996, 280). For this reason, the Croats in Osijek in the period from 1918 until 1941 advocated for the greatest possible autonomy of their city on regional level, supported the city of Zagreb in the Croatian legal requirements regarding the constitutional reorganization of the Kingdom of Serbs, Croats and Slovenes - Yugoslavia.

The changes in the legal and political position of Osijek in the Kingdom of Serbs, Croats and Slovenes were affected by the laws passed in 1922: the Act on the Election of City Councils and in particular the General Administration Act, Regional and District Self-Government Act and the Decree on Dividing the Land into Regions, as well as by abolishing the Provincial Administration for Croatia and Slavonia in 1924 and 1925. It was only in 1924 that the activities of the new administrative authorities established on the laws of 1922 began, and the regional self-government started operating only in 1927.⁴

The Osijek region had no authority over Osijek, which was still a self-governing city municipality directly subordinated to the National Government in Zagreb (Dimitrijević-Kolar, 1995, 89-92). This is evident in Art. 11 of the Decree on the Regional Board of Osijek Self-Government of 8 November 1928⁵ stipulating as follows: "The Department for Self-Governing Administration supervises district and municipal self-governments. This refers in particular to

² Državni arhiv u Osijeku - arhivski fond Trgovačko-obrtničke komore, kutija 16, predmet 8298/1918.; kutija 17, predmet 26/1918 [*State Archives in Osijek, Archival fond of the Chamber of Commerce, box 16, item 8298/1918, box 17, item 26/1918*].

³ Državni arhiv u Osijeku – Fond Gradsko poglavarstvo (HR-DAOS), Trgovačko – obrtnička komora, kutija 17, predmet 1035/1919. [*Chamber of Commerce, box 17, item 1035/1919*].

⁴ Zakon o izboru gradskih zastupstava za gradove Hrvatske i Slavonije od 28. II.1922. [*The Act on the Election of City Councils*], Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 14. kolovoza 1922.; Zakon od 26. travnja 1922. o opštoj upravi [*the General Administration Act*], SLN 92/22 i SLN 101/22; Zakon od 26. travnja 1922. o oblasnoj i sreskoj samoupravi [*Regional and District Self-Government Act*], SLN 92/22 i SLN 101/22; Uredba o podjeli zemlje na oblasti od 26. travnja 1922. [*the Decree on Dividing the Land into Regions*], SLN 92/1922. The abolishing of the Provincial Administration with its center in Zagreb began in 1924 with the government's decision that grand prefects should start governing. In Osijek, the grand prefect started governing on February 16th, 1924. Vjesnik Županije virovitičke, 1924., br. 4. [*Vjesnik Županije virovitičke, no.4, 1924*]

⁵ Hrvatski državni arhiv, Osječka oblast, kut. 1. [*Croatian State Archives, Osijek Region, box 1*]. The decree was typewritten, but not signed. The decree was drafted in the spring of 1928 and approved by the regional committee on 25 October 1928.

the following issues: 1. Enforcement and application of the Law on Village Districts and the Law on Municipalities, excluding the city of Osijek, and the Law on Regional and District Self-Governments, 2. Disciplinary authority over mayors, officials, officers and employees in village districts and market towns, which do not have a governing magistrate, as well as disciplinary authority over mayors and officials and officers of all cities in the region except the city of Osijek⁶, 8. Examination and approving of the final accounts of rural districts and municipalities excluding the city of Osijek.” The result of a new administrative division was not passing a single Law on Districts for the Entire Kingdom of SHS, and therefore the Law of 1895 was still in force in Croatia and Slavonia. Accordingly, the city government of Osijek still operated according to the Statute of 1916. Thus, the affairs of the municipality were performed by the authorities of the city government: the city council, the mayor and the city municipality. The position of the head of the city of Osijek was the grand prefect, who supervised the operation of the city administration as well as the transferred scope of authorities (in fact, he was a government commissioner).⁷ Along with the position of the grand prefect, there was a mayor. This speaks for the fact that the authority of the city government had been reduced even more to a more or less nominal function. The city government operated on the decisions of the city council, and it carried out the tasks of transferred scope (public and general administration tasks). In addition, Osijek had a Steering Committee dealing with tax, disciplinary and trade union affairs (referring to complaints against city officials)⁸, as well as a number of exclusively state, government bodies, such as the tax administration, the main customs office, the financial directorate, etc. (Lukić, 2016, 26).

Thus, until 1934, when the Law on Town Districts was passed, the city of Osijek applied the former Act on the Organization of Town Districts of 1895, according to which Osijek was directly subordinated to the National Government in Zagreb. The legal status of Osijek was weaker once the Provincial Administration for Croatia and Slavonia was abolished due to the fact that the powers of the former Provincial Government in Zagreb were largely taken over by the Belgrade Government. This led to frequent misunderstandings between the Government in Belgrade and the Municipality in Osijek. Namely, after the city elections held in Osijek on

⁶ The city of Osijek, as a city of the first order, was directly subordinated to the government. This was also the case during the Austro-Hungarian monarchy, and until 1929 the old legislation applied in the territory of Croatia and Slavonia.

⁷ The Vidovdan Constitution adopted on 28 June 1921 abolished the counties and Osijek Region was established on 26 April 1922 (Službene novine, 1922. / *Official Gazette* of 1922, p. 190). Dr. Jovan Božić served as the Grand Prefect of the Osijek Region until 3 January 1923. On that occasion, “Hrvatski list”, Osijek noted that “like a bolt from the blue, the Osijek radicals were struck by the news that the Serbian grand prefect Dr. Božić had been dismissed, and a Croatian, Dr. Franjo Gabrek, had been appointed in his place.” Furthermore, the aforementioned paper states that the prefectship of Dr. Božić was the most shameful era of lawlessness, violence and corruption for Virovitica County and the city of Osijek, which had never been experienced before in this ancient county. Osijek radicals could not possibly understand that their “purely Serbian” Pašić government would dismiss the Serb Božić. Therefore, the “people” had to rebel in order to “replace” Dr. Božić, and that is why deputies from the Osijek area, Serbian radicals, went to Belgrade to pray submissively and to protest. When Pašić saw those angry radicals, those “conscious people”, who cannot let go of their “favourite” from a high position, he resolved the matter by saying that “the Royal Decree on the appointment of Dr. Gabrek cannot be revoked”. Since the people protested and wanted Dr. Božić, Pašić decided that both of them should remain as grand prefects of Virovitica County and the city of Osijek - Dr. Gabrek as the “regional grand prefect of the Osijek region”, which has not been created yet, and Dr. Božić as the “grand prefect of Virovitica County and the city of Osijek.” In this way, two people are sitting on one chair. Now there will be plenty of “solutions”, because when two people work, there will be progress” - stated the then “Hrvatski list”, see Hrvatski list, Osijek, 3rd January 1923. The above example illustrates the unfavourable situation for the citizens of Osijek and the Croatian people by joining the joint state of the Serbian People’s Republic, and the Greater Serbian policy in action.

⁸ Zakon od 21. lipnja 1895. ob ustroju gradskih obćinah u kraljevinah Hrvatskoj i Slavoniji [*The Statute on Ordering the Townships*], Sbornik zakonah i naredabah, valjanih za kraljevinu Hrvatsku i Slavoniju, Zagreb, 1895, čl. 103-107.

13 March 1927, the elections for the mayor of Osijek were held on 21 April 1927, which Dr. Vjekoslav Hengl⁹ won with 33 out of 38 votes by secret ballot, whereas the member of the Radical Party - Maksimović remained in minority with 10 votes (Sršan, 2009, 80-117). However, the Belgrade government annulled the elections and appointed the commissioner of their choice.¹⁰

3. Significant provisions of the Law on the election of the city councils

The only law that directly concerned the city administration was the Law on the Election of City Councils for the cities in Croatia and Slavonia of 28 February 1922, which differed in many respects from what was implemented under the Decree of 1 November 1919 and the Ban (Vice-roy) Order of 23 November 1919.¹¹ Two electoral systems applied for city councillors in Croatia and Slavonia at that time. Since legal and political position of Osijek was mainly influenced by the Law on the Election of City Councils of 1922¹², the provisions of this law will be discussed in detail later in the text.

The Law on the Election of City Councils of 28 February 1922 introduced numerous changes in the electoral system for city councillors in Croatia and Slavonia, which concerned both active and passive voting rights and the compilation of voter lists, as well as the entire electoral procedure. It was mainly that only the protection of electoral freedom remained within the same legal framework (Milušić, 1976, 273). The law stipulated the active right to vote for all men who are 21 years of age and over and who reside in the district area for at least one year. Women were entitled to vote on the condition that they were the head of the household, employed in public services with a proof of the quality of their work, and completed secondary education. Active officers, military priests and civilians in military service, as well as all active members of the armed forces and constabulary (gendarmerie) were exempted¹³ from active right to vote. In addition, the persons enjoying permanent social assistance or “poor relief” from the city or other public funds, and those who lived on public alms were also exempted from active voting rights.¹⁴ Regarding the active right to vote, there is an interesting detail to be mentioned, namely the provision of the law obliging the employer to give its employees and workers enough time to be able to exercise their right to vote (Article 18).

Likewise, the new law introduced a few significant changes as regards passive voting rights. Thus, the age limit for acquiring passive voting right differed from that required for exercising active voting rights. In order to acquire the passive right to vote the person should be 30 years of age, while the active right to vote was still acquired at the age of 21. Furthermore, the three-year long residence in the district that was needed as a condition for acquiring passive voting

⁹ Vjekoslav Hengl was not a regime man, but the member of the oppositional Croatian Union (*Hrvatska zajednica*) (he became a member on 7 June 1921), see: Sršan, S., *Gradonačelnici slobodnog i kraljevskog grada Osijeka 1809.-1945.*, Glasnik Arhiva Slavonije i Baranje, vol. 10, Osijek, 2009., pp. 80-117.

¹⁰ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1078., str. 4. [*Minutes of the city council, book no. 1078, p. 4*]

¹¹ Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 1919, komad VIII, broj 68. [*Collection of laws and orders valid for Croatia and Slavonia, 1919, item VIII, number 68*]

¹² Službene novine, 107/1922. [*Official Gazette, 107/1922*]

¹³ The Law on Elections for City Council in Croatia and Slavonia of 28 February 1922 distinguishes between exemption and exclusion from the right to vote. Persons who were excluded from the right to vote were considered not to have the right to vote at all, while persons exempted from the right to vote had that right, but could not exercise it.

¹⁴ Support received from the sick (district) treasuries, free care in public hospitals and scholarships, as well as annuities in case of accidents, old age and infirmity, as well as assistance received by individuals from public funds in the event of natural disasters were not considered poor relief or public charity. (Article 2, paragraph 2, cit. Law).

rights for residents of the city municipality who were not natives was reduced to two years. Illiteracy was no longer an obstacle for election to the city council, and it allowed exercising passive voting rights for persons who could neither read nor write, which was not the case before.¹⁵

As regards the electoral rolls, the new law stipulated that in city municipalities with multiple polling stations, alphabetical electoral rolls were compiled for each polling station. These rolls comprised voters who had the right to vote at the polling station. There could still be more polling stations in municipalities with more than 1,000 inhabitants. The polling stations were set by the municipality, whose duty was to notice them along with the notice of the exact day of election.¹⁶ However, according to the Decree of 1 November 1919, polling stations included voters of certain alphabetical groups, and according to the new Law, these included 500-800 voters residing in a particular city borough. Each borough was one polling station for which a separate electoral roll is drawn up. The composition of the election committees changed as well and they included representatives of the candidate lists, but, as stipulated by Art. 8 of the Law, they did not have decision-making right, and could only make remarks, which had to be entered in the record.¹⁷

Nominations and voting for city councils were conducted according to candidate lists specifying the name, surname, occupation and address of each candidate. The election was immediate and by secret ballot. Votes were cast by handing in the ballots (in form of small balls), and each confirmed candidate list in city elections had to have its own ballot box at the polling station. Article 12 of the Law stipulated that the election material (ballot boxes and balls) is the same as for the election of the National Assembly, according to Art. 45 and 46 of the Law on the Election of People's Representatives.¹⁸ The Law stipulated that voters receive special election cards comprising the serial number designating registration of the voter in the electoral roll and polling station where the voter would vote, the election date and the time denoting start and end of voting. The duty of the city municipality was to assign and deliver each election card to a voter upon immediate election notice.¹⁹

The Law governs the procedure details of the election committees before voting in a new manner, especially when taking over election materials, organizing and safeguarding the polling stations, as well as in the course of voting and establishing the voting outcomes. As regards the distribution of mandates, the new Law maintained the way mandates were allocated to candidate lists according to the electoral quotient system, without any changes. Finally, it is

¹⁵ Zakon o izboru gradskih zastupstava za gradove Hrvatske i Slavonije od 28. II.1922. [*The Act on the Election of City Councils*], Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 14. kolovoza 1922., pp. 54-63.; Milušić A., Izborni sistemi za lokalna predstavnička tijela u staroj Jugoslaviji s osvrtom na jugoslavenske zemlje prije njihova državnog ujedinjenja 1918.: disertacija, Pravni fakultet sveučilišta u Zagrebu, Zagreb, p. 274.

¹⁶ The day of the election had to be determined and noticed by the city administration as soon as the electoral rolls were final. At least fifteen days had to elapse from the notice to the day of the city council election (Article 13, cit. Law).

¹⁷ Čl. 8. Zakona o izboru gradskih zastupstava za gradove Hrvatske i Slavonije od 28. II.1922. [*Art. 8. of The Act on the Election of City Councils*], Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 14. kolovoza 1922.; Milušić A., Izborni sistemi za lokalna predstavnička tijela u staroj Jugoslaviji s osvrtom na jugoslavenske zemlje prije njihova državnog ujedinjenja 1918.: disertacija, Pravni fakultet sveučilišta u Zagrebu, Zagreb, p. 275.

¹⁸ Zbirka zakona i propisa za upravnu službu u Hrvatskoj, Slavoniji i Međimurju, ed. Ivan Domitrović, Zagreb, 1924, str. 301. [*Collection of laws and regulations for administrative service in Croatia, Slavonia and Međimurje*, ed. Ivan Domitrović, Zagreb, 1924, p. 301.]

¹⁹ Čl. 12. Zakona o izboru gradskih zastupstava za gradove Hrvatske i Slavonije od 28. II.1922. [*The Act on the Election of City Councils*], Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 14. kolovoza 1922., pp. 54-63

necessary to mention a change brought about by the Law on the Election of the City Councils of 28 February 1922, in relation to the earlier electoral system. Namely, in Croatia and Slavonia, the city council deputies were not elected and therefore this institution was neither provided by the Decree of 1 November 1919. This Decree retained the earlier solution, according to which all vacant seats in the city council were filled at the end of each year in a new election. In contrast, Art. 26 of the Law of 28 February 1922 stipulated in cases when a representative position is vacant before the end of the mandate period of the city council, i.e. when a person elected to the city council is a person who either could not be elected or who withdrew from the election, that the vacant seats shall be filled by the next candidate from the list of candidates in which the representative, whose seat was vacated, was also elected. Only if the list of candidates has been exhausted, new election must be held for the vacated representative seat.²⁰

The protection of the right to vote and electoral freedom remained in the same legal framework as before, because the Law on the Election of City Council of 28 February 1922 along with the former Decree of 1 November 1919 comprised the same regulation that the provisions of the Law on Protection of Freedom of Election of 1 March 1907 apply to elections for city council, as well. However, the aforementioned Law on the Election of City Council of 28 February 1922 still comprised other provisions related to the protection of electoral freedom. Thus, the Law stipulated that “in the course of the electoral act” the members of election committees are subject to special protection of the law, pursuant to Articles 68 and 81 of the Criminal Code applicable for Croatia and Slavonia (Art. 8, para. 4 of the Law), that a voter who does not put his hand in each ballot box or who votes publicly, that is, who otherwise violates the secrecy of the vote, shall be fined with 10 to 100 dinars (Article 18, para. 8 of the aforementioned Law). The latter provision protected the secrecy of voting in the election for city council in more than was the case in the previous electoral system lacking this provision. The Law on Protection of Freedom of Election itself did not punish the acts of violation of the secrecy of voting as electoral offenses.

3.1. Elections for city council and its constitution

Although this law was passed as early as 1922, the first elections in which all members of the city council in Osijek were elected on the basis thereof were scheduled on 13 March 1927. However, before the city council elections were held in accordance with the new law, the law that was applied in the city of Osijek elections was the Act on the Organisation of Town Districts of 1895. In accordance with the Act on the Organisation of Town Districts the town elections shall be held every third year whereas the half of the city council was elected on term of six years. Thus, town elections in Croatia and Slavonia were held as early as 1920. In Osijek, on 11 March 1920, a new city council was elected. Until the elections, the head of the city government was the Government Commissioner Rudolf Petrik, who was appointed to that position by the government after the latter dissolved the city council at the end of 1919. Thereby the mandate was removed from Mayor Pinterović as he no longer had the support of the new government.²¹ In these elections, there were seven lists: the list of the the Croatian Union (*Hrvatska zajednica*), the Croatian People’s Party (*Hrvatska pučka stranka*), the Democratic Party (*Demokratska stranka*), the Radical Party (*Radikalna stranka*), the Socialist Workers’ Party of Yugoslavia (*Socijalistička radnička partija Jugoslavije*) (communists) and the house owners, and the joint list of merchants and craftsmen (Jović, 1984, 149-175). The list of *Socijalistička radnička partija Jugoslavije* won 20 out of 40 seats in the city council, while the

²⁰ Zbornik zakona i naredaba valjanih za Hrvatsku i Slavoniju, 1919, komad VIII, broj 68. [*Collection of laws and orders valid for Croatia and Slavonia, 1919, item VIII, number 68*].

²¹ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1070. [*Minutes of the city council, book no. 1070*].

Hrvatska zajednica was the most successful among the civic parties with 7 seats, the radicals won 4, the list of Hrvatska pučka stranka 3, merchants and craftsmen 3, the democrats 2, and the list of house owners won 1 mandate. At the constitutive session of the city council on 16 March 1920, Dr. Vjekoslav Hengl was elected mayor, and communist Ladislav Kordić was elected deputy mayor (Jović, 1984, 174). However, the Government annulled the mandates of communist city representatives because they took the oath by dissociating themselves. At the parliamentary session on 14 May 1920, twenty more communists from the candidate list took the prescribed oath. However, during the election of the mayor, the communists and radicals submitted blank ballots, which made the election of the mayor impossible.²² Because of this act, the Government dissolved the city council ordering new elections²³ and finally appointed their commissioner Grubić.

New elections were noticed on 2 July 1920, and the civic parties agreed on a joint appearance in the elections in order to oppose the communists as much as possible. However, due to the conditions of the local organisation of the HPS, which caused the indignation of other parties, the joint acting did not take place.²⁴ KPJ did not participate in these elections, instead, the Social Democratic Party did so. Both the Hrvatska zajednica and the Radical Party won 10 mandates each, and were equally successful. HPS won 6, craftsmen and Jews won 3 each, and the remaining lists won 2 mandates each.²⁵ The supporters of Savić's group (former list of the house owners) joined the Radical Party; thus, the Radicals with 12 mandates became the most powerful party in the newly elected parliament.²⁶ The constitutive session of the city council was held on 9 July, but none of the three candidates for mayor won the required majority, so that the session was postponed. Thus, the election of the mayor took place on 21 October 1920, and Dr. Hengl, a member of the Hrvatska zajednica, was elected to the position, while Dr. Neubauer was elected his deputy.²⁷

The elections were called on 30 December 1923, when half of the city councillors were to be elected. The aggravation of relations between the HRSS and the Hrvatska zajednica reached its peak on the eve of these elections. As many as 10 lists were nominated, and the Hrvatska zajednica achieved its greatest success having won 10 mandates, the HRSS won 3, the Radical Party and the Independent Workers won 2 mandates each, while the Democratic Party, Jews and radical dissidents won 1 mandate each.²⁸ At the first session of the renewed city council on 17 January 1924, the Hrvatska zajednica member Bratoljub Šram was elected deputy mayor.²⁹

All indicators of the balance of power between civic political parties clearly showed that in the upcoming elections for city councillors in 1927, the main struggle would ensue between the federalists and radicals (Jović, 1996, 305-320). Among the electors, the question of the attitude of the Radić supporters towards the federalists arose after *de jure* cooperation between the HSS and the Radical Party was terminated on 28 January 1927. Ten lists were registered for the elections,³⁰ out of which only three had a chance of success i.e. the federalists, radicals and

²² Amplius: Rajković, A., *Ideološki prijepori u radničkom pokretu u Osijeku (1918.-1939.)*, doktorska disertacija, Filozofski fakultet Sveučilišta u Zagrebu, 2020.

²³ Hrvatski list, 16. svibnja 1920. [*Hrvatski list, 16th May 1920*]

²⁴ Hrvatska obrana, 25. lipnja 1920. [*Hrvatska obrana, 25th June 1920*]

²⁵ Straža, 4. srpnja 1920. [*Straža, 4th July 1920*]

²⁶ Ibid., 6. srpnja 1920. [*Straža, 6th July 1920*]

²⁷ Ibid., 27. listopada 1920. [*Straža, 27th October 1920*]

²⁸ Hrvatski list, 1. siječnja 1924. [*Hrvatski list 1st January 1924*]

²⁹ Ibid., 18th January 1924. There was a considerable interest in the first session of the council because it was not known whether the Radić family would take the oath or not. Both the Radić supporters and members of the Independent Workers (communists) took the oath.

³⁰ The lists were submitted by the HFSS, HSS, Radical party KPJ, HPS, Nikićevci, SDS, Jews, Germans, and the Democratic Party under the name the Citizens' Block, see: HR-DAOS-6, GPO, Birački spiskovi grada Osijeka,

communists. The decision of the Germans to stand independently in the elections for the City Council caused indignation among the federalists because the federalists had a significant number of supporters among the German population. In their decision to come forward with their list, the federalists saw another move by the radicals with an intent to increase their chances in the struggle for mandates.³¹ In the elections for the city council on 13 March 1927, the HFSS won most mandates i.e. 15, the Radical Party - 10, the Independent Workers - 7, the HSS - 2, and HPS, SDS, Građanski blok (*Civic Block*), supporters of Nikić, Jews and the German Party won 1 vote each.³²

The period from the elections to the constitutive session of the Council taking place on 12 April 1927, the federalists and radicals used to win over the communists. Thus, on 24 March, an agreement was concluded between the Club of City Councillors of the General Workers' Bloc, who rejected any possibility of an agreement with the radicals, and the Local Organisation of the HFSS.³³ At the constitutive session of the city council on 12 April 1927 in the elections for the mayor, the federalist Dr. Hengl, who was not among the three proposed candidates, received the majority of votes; the session was consequently interrupted.³⁴ Namely, the majority of the city councillors did not vote for any person proposed based on the candidacy committee. The city councillors of the Hrvatska federalistička seljačka stranka (*Croatian Federalist Peasant Party*) and the Communist Party did not adhere to the proposal of the candidacy committee, but voted for a non-candidate despite clear provision of Art. 51 of the Act on the Organisation of City Districts in Croatia and Slavonia of 21 June 1895, which reads as follows: "City councillors shall elect the mayor from among themselves upon the proposal made by a three-member candidacy committee. The council is obliged to elect one candidate among the proposed candidates", despite the warning expressed by the President of the Assembly that the votes cast for a non-candidate will be considered null and void. Furthermore, in the shortlist election of mayor, since an absolute majority was not achieved in the first round of the election, two candidates who had received the majority votes in the first ballot were not elected; instead, a non-candidate was elected despite the provisions of Art. 50 of the aforementioned law, which reads: "If an absolute majority is not achieved in the first round of the election, then a shortlist is entered, limited to only two people, who received the most votes in the first election round." In this context, it was obvious that the city council at that time was incapable to successfully operate and manage communal affairs of the city of Osijek. Dr. Vjekoslav Hengl received 33 out of 38 votes by secret ballot, while the radical Maksimović remained in the minority with 10 votes. After four months, by decision of the Ministry of the Interior, the city council was dissolved on 19 July 1927, and the governorship was extended.³⁵

However, the mutual accusations of the federalists and radicals due to the extension of the governorship soon stopped, because the political parties started organizing pre-election activities for the elections to the National Assembly scheduled on 11 September 1927. This time, the three strongest parties in Osijek received fewer votes than in the elections for the city council held on 13 March 1927, whereas all other parties received more votes in the assembly

knjige br. 1355., 1356.; izborni materijal u kutijama (1923-1927, 1927-1931). [HR-DAOS-6, GPO, Voter lists of the city of Osijek book no. 1355, 1356; electoral material in boxes (1923-1927, 1927-1931)]

³¹ Hrvatski list, 9. ožujka 1927.; Hrvatska obrana, 6. ožujka 1927. [Hrvatski list, 9th March 1927; Hrvatska obrana 6th March 1927]

³² Hrvatski list, 14. ožujka 1927. [Hrvatski list, 14th March 1927]

³³ Straža, 16. travnja 1927. [Straža, 16th April 1927]. On the activity of the Klub manjine see: Jug, 6. travnja 1927. [Jug, 6th April 1927]

³⁴ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1078., str. 4. [Minutes of the city council, book no. 1078, p. 4]

³⁵ Hrvatski list, 20. srpnja 1927. [Hrvatski list, 20th July 1927]

elections.³⁶ After the assembly elections, the call for city elections again became relevant in the political life of the city. On that occasion, in late September the party newspapers published the news that the elections for the city council were scheduled on 6 November 1927, which meant the beginning of new pre-election activities for all parties.³⁷ The results of the elections held on 6 November did not change the relationship of the three strongest political parties. Federalists under the name of the Croatian citizens and workers won 16 out of 40 mandates, and radicals won 11 mandates. The Independent workers won 6, the Jews and the Labour Bloc received 2 mandates each, the HSS, the Nikić supporters and the Germans won 1 mandate each.³⁸ Three days after the election, the Inter-Party Working Bloc was founded by the Croatian Citizens' and Workers' Union, HSS, Jews and the Citizens' Working Bloc.³⁹

After the elections, in accordance with the decision of the acting grand prefect of the Osijek region in Osijek passed on 11 November 1927, the newly elected city council was summoned to the constitutive assembly that took place on 14 November 1927. However, the assembly had to be postponed because in the period between the convening and holding of the assembly, the National Assembly received, on the proposal of Dr. Ante Trumbić, an amendment to Art. 51 of the Act on the Organization of City Districts in Croatia and Slavonia of 21 June 1895, which abolished the election of mayors based on the proposal of three candidates. However, by the decision of the grand prefect of the Osijek region in Osijek of 14 December 1927, the second assembly was convened for 16 December 1927, at which the oath was taken by the elected city councillors and the elections and mandates were verified.⁴⁰

Due to the unsuccessful negotiations that were conducted on several occasions between the Inter-Party Working Bloc and the radicals, an agreement was finally reached in early spring on 7 April 1928, which enabled the election of the mayor and his deputy. The Federalist Dr. Hengl was elected mayor, and the radical Jovan Vuković was elected as his deputy.⁴¹ Dr. Hengl held the position of mayor until 1934, when he resigned on 8 March, and the Ban's Administration of the Sava Banovina in Zagreb accepted his resignation appointing, at the same time, based on the Law of 6 January 1929, a new mayor and new city councillors (with no elections).⁴²

4. The role of the city in personal, social and economic life of its citizens

By gaining insight into the minutes and other documents of the city of Osijek, we find out about the activities of city government in managing personal, social and economic areas in life in certain periods, including the period of functioning of the Osijek region. After the establishment of the Osijek region in the newly organised state in the twenties of the 20th century, the city council had to pass decisions on following issues: increase in excise and city fees, construction of the power plant and electric tram, the patronage of the city municipality over Music school,

³⁶ In the elections for the city council, the HFSS received 2,505 votes compared to 1,935 votes in the parliamentary elections, Radical Party received 1,347 votes in city council elections and 1,761 votes in the parliamentary elections, Independent Workers received 1,106 votes in city council elections and 1,123 votes in the parliamentary elections., see: Kostić, L., Statistika izbora narodnih poslanika Kraljevine SHS održanih 11. rujna 1927., Beograd, 1928.; Hrvatski list, 23. rujna 1927. [*Hrvatski list, 12th September 1927*]; Straža, 12. rujna 1927. [*Straža, 12th April 1927*].

³⁷ Hrvatski list, 23. rujna 1927. [*Hrvatski list, 23rd September 1927*]

³⁸ Hrvatski list, 7. studeni 1927. [*Hrvatski list, 7th November 1927*]

³⁹ Hrvatski list, 10. studeni 1927. [*Hrvatski list, 10th November 1927*]; Dr. Hengl was elected president, Dr. Muž was elected vice president, and Dr. Julije Kaiser was elected secretary.

⁴⁰ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1078. [*Minutes of the city council, book no. 1078*]

⁴¹ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1079. [*Minutes of the city council, book no. 1079*]

⁴² Otpis Kraljevske banske uprave Savske banovine Upravno odijeljenje, Pov. II. broj: 861/34.

opening of the National Health Centre, water supply system construction; the administration of the Children's Home was transferred to the authority of the city of Osijek.⁴³ The minutes show that discussions were lead on the topic of adoption of statutes to regulate various management aspects of the city life. In this context the following Statutes were adopted: Statute on the Organization of the Corps of Police Detectives of the Royal Policing Committee in Osijek (1924)⁴⁴, Statute on Defence Organisation Against the High Water of the Drava River in the Area of the Free and Royal city of Osijek (1926), the Statute on the Use of the Drava Water from the Water Supply System (1928), and the Statute on Head Officials and Officers of the Free and Royal City of Osijek (1924).⁴⁵

Since 1928, the Osijek Fair and Economic Exhibition has been held in Osijek twice a year, in spring and autumn. Osijek's cultural life was reasonably rich throughout the interwar period, albeit due to the economic crisis, significant financial resources were not invested in culture. The primary cultural institutions were the museum and the theater. Because there were no more funds to keep the Osijek theater operating, the state authorities disbanded it and established a theater community for the Osijek and Bačka regions, so Osijek shared the theater with Novi Sad, Subotica, and Sombor (Filipović, 47, 2023)

The upper large gymnasium, the women's real gymnasium and the civil girls' school were closed. The absence of enrolled students who could afford an education and a lack of classroom space were the reasons for closing secondary schools. (Lukić, 2016, 161).

The rules of procedure of the city council and city municipality was determined by the Statute of 27 March 1916⁴⁶, unless otherwise determined by the Law of 21 June 1895. The organisation of the city police guard was regulated by the Statute on the Organization of the Police Guard⁴⁷; and the scope of the city accounting, treasury, administration of the consumption office and the city excise office was regulated by regulations in the respective field. Personal issues of city officials and employees were governed by the Regulations for the Employment and Service of City Official's Assistants and Assistant Bailiffs of 1920 with an addendum of 29 June 1922, the Statute on City Officials and Employees of 27 March 1924⁴⁸ and subsidiary the Law on Officials and Other Civil Servants of 31 July 1923. The city municipality comprised 13 departments.⁴⁹

Important conclusions of the royal government commissioner that refer to the free and royal city of Osijek (local authority) are: a) Conclusion of 1 August (number 5694 VII-1927) adopting the regulations for the electric tram in Osijek; b) the conclusion of 1 August 1927

⁴³ HR-DAOS-6, GPO, Zapisnici grad. zastupstva, knjige br. 1072-1079. [*Minutes of the city council, book no. 1072 – 1079.*]

⁴⁴ The corps of police detectives performed its services on the one hand, as an executive body in the civil department; and on the other hand, as an auxiliary body of the royal policing committee. The tasks of the corps members were to maintain public peace and order and security, enforce laws and orders, by which, based on their observations and investigations, they participated in disclosing violations of laws and orders, their initiators, perpetrators, etc., and observed that the needs of the city municipality are met and violations reported to the royal policing committee., HR-DAOS-6, GPO, Serija statuti gradski, kut. br. 5901-5911. [*Series of city statutes, box. no. 5901-5911*]

⁴⁵ HR-DAOS-6, GPO, Serija statuti gradski, kut. br. 5901-5911. [*Series of city statutes, box. no. 5901-5911*]

⁴⁶ HR-DAOS-6, GPO, Predmetni spisi, kut. br. 5902., spis br. 32.075 (rješenje kr. hrv.-slav.-dalm. Zemaljske vlade, odjela za unutarnje poslove od 19. svibnja 1916. godine); HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1067. [*Minutes of the city council, book no. 1067*]

⁴⁷ Statut ob ustroju redarstvene straže v. u: HR-DAOS-6, GPO, Predmetni spisi, kut. br. 5908., str. 1-21.

⁴⁸ Statut za poglavarstvene činovnike i namještenike slob. i kr. grada Osijeka, prihvaćen na sjednici gradskog zastupstva 13. veljače 1924., redni broj 37., v. u: HR-DAOS-6, GPO, Predmetni spisi, kut. br. 5903.

⁴⁹ Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927, HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823.

(number 5704 VII-1927) adopting the regulations for the city power plant in Osijek; c) conclusion No 30756 of 31 August 1927, which fully implemented the Decree on Converting the State Pensions from Crown to Dinar; d) Conclusion No 194 of 18 October 1927 on out-of-court settlement with the undertaking Jugoslavensko d.d. for gas and lightning; and e) Conclusion No 6901-VII of 19 October 1927 appointing the administrative and supervisory board of the city power plant and the electric tram.⁵⁰

The city municipality sessions were held regularly, i.e. once a week and presided over by the royal government commissioner or his deputy director of the city municipality, with the participation of all officers. The sessions resulted in resolving 2052 cases. The operation of the city municipality further continued in the following departments: construction, economic, military, education, political, health, social welfare department and craft department.⁵¹

Until 1927, the administration of the city's horse-drawn tram was responsible for the collection of garbage and street watering. However, since that administration had to be dissolved due to the construction of the city's electric tram, the city municipality announced a tender for the execution of the aforementioned works with a budget of 859,000 dinars. Several offers were received for this tender, but none could be accepted due to their diversity. As a result, the city municipality took over the collection of garbage and street watering. The city government was able to take over the mentioned works soon, because it took over from the management of the former horse tram the inventory necessary for the disposal of garbage and street watering, and it also had the necessary staff, horses and carts.⁵²

In addition to the activities of the aforementioned departments, the activities of the city government included the city offices, namely: the city committee for the poor, local courts⁵³, barrel labelling office, the city consumption office and the city excise office.⁵⁴ Moreover, in

⁵⁰ See more in: Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927, HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823. [*Report of the city administration on the domain and general administration of the city of Osijek, Osijek, 1927, HR-DAOS-29, GPO, Collection of documents, no. 129/1927, box. 5823.*]

⁵¹ Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927, HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823.

⁵² Ibid., p.33

⁵³ The basic regulations on the organization of local courts are set by the Law on Local Courts and Procedures before these Courts of 3 October 1876, see: Smrekar, M., Priručnik za političku upravnu službu u Kraljevinah Hrvatskoj i Slavoniji, Zagreb, 1899. The law was amended by 1881 and 1882 regulations, by which certain provisions of the Law of 1876 were amended and supplemented. As a rule, local courts were established for each individual municipality, and exceptionally a joint local court could be established for two or more municipalities. The jurisdiction of the local courts consisted in resolving civil legal disputes over pecuniary sums not exceeding certain amounts (30, 60, 100 forints). In later amendments, the amounts increased to 500 forints, if the parties agreed thereto. Local courts also resolved disputes in other cases (movable property, personal considerations), if the plaintiff offered to accept this sum of money on their behalf; see Rončević, M., Sudski poslovi Poglavarstva slobodnog i kraljevskog grada Osijeka 1809-1943 godine, Glasnik arhiva Slavonije i Baranje, br. 10, Osijek, 2009, p. 130. There were two sections of the local court in Osijek, one for the Upper Town and the other for the Lower Town, see Rončević, M., Pregled organa pravosuđa od 1850. do 1941. godine pod nadležnošću Državnog arhiva u Osijeku, Glasnik arhiva Slavonije i Baranje, br. 8, Osijek, 2005.

⁵⁴ From 1 January 1927 until 31 December 1927, the City Poor Committee had 1,676 cases. There were 330 tutoring and 79 guardianship cases at that time. In this same period, the city collected in its excise office from various city levies, duties and fees the total of 10,203,374 dinars; the fees included e.g. market stall fees, public events fees, accommodation fees, fees on card players, pubs, night visitors, carts, motor cars, wine, flour, and sugar consumption tax. Additionally, the city tax office included the following types of taxes in this period: direct and extraordinary tax, disability tax, military-chamber surcharge, income tax, war tax, profits tax, business revenue tax, tax on trade, labour, city, rent and canals, see in: Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927., str. 41., HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823.

December 1926, the Electric Power Station (city power plant) was put into public use for operating the city's electric tram, electric public and private lighting, and the operation of small craftsmen and industrial undertakings. Based on the decision of the royal government commissioner (chapter No. 4586/1585-VII-1927), the City Power Plant established its installation office, which started to operate in July of the same year.⁵⁵ For a correct assessment of the power plant's work, it should also be taken into account that the power plant provided all electric public lighting to the city municipality free of charge throughout the year. The opening of the city's power plant enabled the use of the city's electric tram in December 1926. In addition to the city's power plant and the electric tram, the city savings bank stands out. Namely, the first mention regarding the preparation for establishing the "City Savings Bank" can be found in the city files (under no. 41.960/III.) of 18 December 1908, reporting that the city municipality was ready to present a proposal for the foundation of the bank, as received by the city council. The initiative for this proposal was made by the city senator Dr. Antun Hrabst. At that time, information was collected from cities in Austria where such savings banks already existed and from the Ministry of the Interior in Vienna. On 22 February 1909, a special committee was formed to study the issue and come up with a concrete proposal. This committee continued collecting information in the years to follow, especially in Zagreb and Karlovac. On 26 June 1918, the city council concluded (no. 286) to establish the City Savings Bank based on adapted rules applicable in the City Savings Bank in Zagreb.⁵⁶ This conclusion was approved by the government commission for internal affairs with its decision of 30 January 1919, number 38.061/18. The city council at its assembly on 6 March 1919, under no. 48 elected the first administrative and supervisory board, and preparation work began immediately.⁵⁷ An overview of the business years in the period from 1919 to 1927 allows a clear insight into the progress of the savings bank and indicates that in 1927 it achieved the second best profit since the day of its foundation.⁵⁸

4.1. Utility infrastructure

Efforts to build a hygienic water supply and sewer continued long after the fall of Austria-Hungary, but due to lack of funds and indebtedness, the construction of both facilities was extended for a long time, until 1945.

The same applied to construction of roads that were damaged and in a bad condition. Nevertheless, they were partially modernized and repaired, so that a part of the city roads was paved. After 1918, waterways of the rivers Drava and Danube were used to connect Osijek with other cities (Pašić, 1985, 103). In 1925, a regular passenger traffic between Osijek and Belgrade was established. Unlike water transport, long after 1918, the Osijek railway transport was run on railway tracks that were built long time ago. Namely, between the two world wars, not a single kilometre of a railway track was built in Osijek and its surroundings, due to the fact that the Belgrade regime moved the focus of the road and railway construction to Serbia (Sršan,

[*Report of the city administration on the domain and general administration of the city of Osijek, Osijek, 1927, p. 41.; HR-DAOS-29, GPO, Collection of documents, no. 129/1927, box. 5823.*]

⁵⁵ Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927., str. 43., HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823. [*Report of the city administration on the domain and general administration of the city of Osijek, Osijek, 1927, p. 43.; HR-DAOS-29, GPO, Collection of documents, no. 129/1927, box. 5823.*]

⁵⁶ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1069. [*Minutes of the city council, book no. 1069*]

⁵⁷ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1070. [*Minutes of the city council, book no. 1070*]

⁵⁸ Izvještaj gradskog poglavarstva o djelokrugu i općoj upravi slob. i kr. grada Osijeka, Osijek, 1927., str. 47., HR-DAOS-29, GPO, Zbirka isprava, br. 129/1927, kutija br. 5823. [*Report of the city administration on the domain and general administration of the city of Osijek, Osijek, 1927, p. 47.; HR-DAOS-29, GPO, Collection of documents, no. 129/1927, box. 5823.*]

1996, 352). Although, Osijek was connected to Brod na Savi/Slavonski Brod, Županja, Vinkovci, Vukovar, Baranja, Hungary, Đakovo, Našice, Požega, Slatina and Virovitica by six intersecting railway lines, on the other hand, it was connected to the main railway lines via second-class lines or vicinal lines that did not receive a single high-speed train (Lukić, 2016a, 24-25). As a result, Osijek remained on the cutoff remnants of the former Austro-Hungarian Monarchy's railway network. All of the radials led to Vienna and Budapest, and purchasing of export trains and freight wagons required significant financial investment (Lukić, 2016b, 95). The fundamental traffic line in the Kingdom of SHS/Yugoslavia was the one that associated Belgrade, Zagreb and Ljubljana. However as per the development of rail lines in the Kingdom (1,600 km) and future development plans, Osijek was left out. This meant that the city of Osijek was at risk of economic ruin and was encouraged the developing of other nearby cities, particularly Vinkovci (Lukić, 2016b, 108). Also, there was no appropriate traffic connection with Zagreb and Belgrade. Despite their short distances (under 100 kilometers), the city of Osijek's existing railway connections with Vukovar, Beli Manastir, and Brčko were crucial to the city's economic life. However, the train schedule prevented Osijek's businesspeople, particularly merchants, from traveling there and back in one day (Lukić, 2016b, 108-109).

As previously stated, horse driven tram traffic played an important role in the city traffic of that time and it was superseded by the electric tram in 1926.⁵⁹ During the World War I, the city of Osijek protected its weak roads by redirecting the traffic, especially military traffic, to state roads. In 1925, the first Bus Company was established to meet the increased traffic needs and in the following year it already transported passengers by 8 buses (Sršan, 1996, 353).

At the end of 1926, the Osijek Power Plant was in function, and in June 1929, the merger of the city power plant, electric tram and water supply companies was carried out. Based on the conclusion of the city council, the municipality of Osijek established a trading company titled "Munjara, tramvaj i vodovod općine slob. i kralj. grada Osijeka"/Power plant, electric tram and water supply of the free and royal city of Osijek/, whose purpose was the production and trade in electricity, the operation of the electric tram and the supply of water for the citizens. The municipality of Osijek, as the owner of this company, should have run it as an own independent trading company subject to the provisions of the commercial law. Business and supervision were carried out on behalf of the city municipality as the owner by the following bodies: city council, city government, steering and supervisory committees. The city council, as the legal representative of the municipality, exercised supreme supervision and passed final decisions in all matters related to the operation of this company, in accordance with legal regulations. It also elected members of the steering and supervisory committees.⁶⁰

4.2. Economic circumstances in Osijek

In 1919 Osijek was, after Zagreb, the largest city in Croatia with a developed industry, trade and commerce. At that time, in Osijek there were a transport warehouse, a stamp factory, two furniture factories, three large and two medium-sized steam mills, an iron foundry, a sugar factory, two breweries, a flax factory, a candy factory, and several other companies, as well as a large wholesale trade. In that period, there were about 900 craftsmen in Osijek, and the city was also an important non-agricultural trade centre for the whole Slavonia, to which Srijem and Baranja counties gravitated.⁶¹

The economy was in serious difficulties in the aftermath of the war. In addition to financial and supply shortage, organisation of trade in wartime and other problems the serious issue was the

⁵⁹ *Ibid.*

⁶⁰ HR-DAOS-6, GPO, Zapisnici gradskog zastupstva, knjiga br. 1080., red. br. 296. [*Minutes of the city council, book no. 1080, no. 296.*]

⁶¹ Hrvatska obrana, Osijek, 1919, br. 63, str. 3-4. [*Hrvatska obrana, Osijek, 1919, no. 63., pp. 3-4*]

transition to a new state. Namely, the legal and economic arrangements of the new State of SHS/Kingdom of Yugoslavia developed rather slowly and were difficult in the regions that had been under the Austro-Hungarian government for a long time (Đidara, 1998, 73). Through centralization, the central government hindered the development of trade, especially in Croatia, where there was the largest population of craftsmen. There were all indicators that the newly established state would direct all its guidelines to the import of foreign craft products, which had a negative impact on trade and general national well-being.⁶² In addition, all foreign companies were placed under sequester and thus managed on behalf of the state by commissioners of special administrations.

The trade shops registering and deregistering data show that the commercial activities were busy and developing in Osijek in the period from 1921 until 1930. There were 586 shops including 126 small-scale shops, and 1278 craft shops in Osijek in 1930. There were also 46 carriers (*furingaš*) and 160 innkeepers. The entire chamber area comprised 27,324 entrepreneurs out of which 3,394 merchants, 2096 small-scale traders, 18,017 craftsmen, 1,608 carriers and drivers and 2,209 innkeepers.⁶³

In the period between the World War I and Second World War, the industrial development of Osijek was state and politically organized towards industrialization and supporting the foreign capital, especially in industry. The milling industry with its three modern and two medium-sized steam mills, to which grain was transported by rail and steamships, was the most represented in Osijek. The operating milling industry included Union Paromlinsko d.d., The first Osijek Roller Steam Mill d.d. formerly Josip Krauss & Sons; Karolina steam mill, pasta and biscuit factory, Piler and Sons; Hermann Mautner Steam Mill; Dragutin Engelhardt, Steam mill; Žiga Schwarz Motor Mill and Ice Factory (Lakatoš, 1924, 525-536). In Osijek there was the largest Yugoslav sugar refinery, several sugar processing factories, five factories for the production of alcoholic beverages, two breweries, three ice factories, a meat industry, two dried meat factories, the largest matches production factory, the largest steam mills, a biscuit factory, a pasta factory, a dairy, one large and several smaller iron foundries, two machine factories, a large soap factory, a soap and machine sealant factory, an agricultural machinery factory, a leather manufacturing factory, several furniture factories, numerous mechanical workshops for wood and metal processing, several steam sawmills and a barrel production factory, a wagon factory, a cork factory, a brush factory, two paint production factories, a glue factory, a glass and mirror factory, a linen factory, a cigarette paper, roll and cardboard factory, several printing works, several brickyards, production of artificial stone, a cement goods factory and a power plant that supplied the city with electricity with plans to expand its supply to the surrounding area of Osijek (Lukić, 2016b, 97).

Because Osijek was an industrial center, when the Great Depression and the economic crisis hit, Osijek's industrialists went bankrupt, workers lost their jobs, and craftsmen and merchants closed their doors. Simultaneously, the state government continued to abolish important economic and cultural institutions in Osijek, this time under the guise of saving money. Craftsmen had an especially difficult time surviving the economic downturn since their clients were predominantly peasants, who had lost most of their purchasing power. Pre-war, well-established stores that had a strong voice in Osijek's commercial landscape for years failed one

⁶² HR-DAOS, arhivski fond Trgovačko-obrtničke komore (hereinafter TOK), kutija 17, predmet 1035/1919. [*State Archives in Osijek, Archival fond of the Chamber of Commerce, box 17, item 1035/1919.*]

⁶³ Izvještaj Komore za trgovinu, obrt i industriju u Osijeku o općem gospodarskom stanju i gospodarskim prilikama na njenom području u godini 1930., Osijek, 1931., str. IV. u prilogu. [*Report of the Chamber of Commerce, Crafts and Industry in Osijek on the general economic situation and economic circumstances in the region in 1930, Osijek, 1931, p. IV. Enclosed.*]

after the other (Lukić, 2016b, 103-104). Also, public transportation, the construction industry, and the food industry all felt the effects of the economic crisis.

5. Conclusion

In 1918 at the end of World War I, Osijek was a town-county within the State of Slovenes, Croats and Serbs that was created on 29 October 1918. With the creation of the Kingdom of Serbs, Croats and Slovenes on 1 December of the same year by the unification of the State of Slovenes, Croats and of the Serbs and the Kingdom of Serbia and Montenegro, Osijek started gradually losing the significance it had in the Habsburg Monarchy and in the Croatian-Hungarian state union. The changes in the legal and political position of Osijek in the Kingdom of Serbs, Croats and Slovenes were affected by the laws passed in 1922: the Act on the Election of City Councils and in particular the General Administration Act, Regional and District Self-Government Act and the Decree on Dividing the Land into Regions, as well as by abolishing the Provincial Administration for Croatia and Slavonia in 1924 and 1925. It was only in 1924 that the activities of the new administrative authorities established on the laws of 1922 began, and the regional self-government started operating only in 1927.

However, even the new administrative division did not mean the adoption of a single Law on Municipalities for the entire Kingdom of SHS, and therefore, the Law on the Organization of City Municipalities from 1895 was still in force. Therefore, the Osijek region had no authority over Osijek, which continued to be a self-governing city municipality directly subordinated to the National Government in Zagreb. All important public authorities were located in Osijek, namely: Osijek region, county region, military division and command post, higher court, two district courts and a local court, financial directorate, financial control department, tax office, customs office of the first order, freight station tobacco and solar office, railway traffic directorate, river transport captaincy, post office, telegraph and telephone, three Roman Catholic parishes, an Orthodox parish, an Evangelical-Augsburg pastorate and a Jewish chief rabbinate.

Thus, the scope of the city municipality is determined by the Law of June 21st 1895 on the organization of city municipalities in Croatia and Slavonia. Accordingly, the city administration of Osijek continues to comply with the Statute from 1916. Therefore, the affairs of the city municipality were performed by the city administration bodies: the city council, the mayor and the city administration. Supervision over the operations of the city administration, as well as the transferred scope of authority, was carried out by the city's grand prefect, who stood at the head of the city of Osijek.

The crucial issue of self-government is certainly the holding of free elections where voters can, according to their decision, choose the representatives they believe will best achieve the interests of the community they represent. However, the state bodies that were supposed to ensure their execution, in practice they found various ways to bypass them themselves. Thus, in the city of Osijek from 1920 to 1929, city elections were held, but if the outcome did not suit the state, the results were annulled by various political means (dissolution of the city council, preventing a stable post-election coalition). Accordingly, extraordinary administration (government commissioner) was imposed on the city. Although this institution was intended as a legal solution in case of political crises, we believe that this solution was used to overthrow a politically undesirable administration.

After 1918, Osijek increasingly fell behind in economic development. Namely, the development of industry in Osijek was slow, as the expansion of industry was characteristic of European countries in that period. The reasons for Osijek's lagging behind in economic and other development should be sought in its loss of the political-administrative function it had as the center of Virovitica County in the Austro-Hungarian Monarchy. Also, Osijek went backwards because of the Yugoslav policy of building railroads guided by the interests of Belgrade, that is, Serbia, which bypassed Osijek. Thus, after the hegemony of Vienna and Pest, the hegemony of Belgrade appeared, which was not inclined to Croatia in state and political terms.

Thus, the history of Osijek in the period between 1918 and 1929 was marked by a struggle between the somewhat established order in the legally regulated but not just state of Austria-Hungary and the new norms enacted immediately after 1918 with the creation of the Kingdom of the SHS. Bearing in mind the content of this consideration, it should be noted that the city of Osijek had a relatively large autonomy with a special status within the Austro-Hungarian administrative system, and it lost all of that in a few years after joining the new state.

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THE ANALYSIS OF B CORP CERTIFICATION GROWTH IN THE EUROPEAN UNION

ABSTRACT

The purpose of the paper is to analyse the growth of B Corp certification across EU countries and to compare the differences in growth between individual countries. The aim of the paper is to present the growth statistics, i.e., to show the growth of the number of certified B corporations from 2007 to 2022 in EU countries. The second aim of the paper is to analyse the factors which have led to growth differences in individual EU countries. The research is based on the quantitative analyses of the data extracted and compiled from the B Corp database (B Corp Impact Data and B Corp Global Directory), and on the qualitative analyses of theme-relevant literature to present the factors behind different growth rates of B Corp certification across EU countries. From recently there is a community of over 1000 B Corps in Europe. However, the results have shown significant differences in the growth of B Corp certification across EU countries. The analysis indicates a set of the critical factors which have led to the growth rate differences: the influence of B Lab Europe, the active role of country-level organizations, the familiarity with the B Corp certificate and the legal environment which enables the adoption of new corporative forms compatible with the B Corp certificate (Benefit Corporation or Special Purpose Corporation-equivalent status, such as the Società Benefit in Italy). The EU countries which are aiming at the higher growth of the number of certified B Corporations should focus on the above-mentioned critical factors. The findings contribute to the relatively new literature about the B Corp certifications in the EU, by giving a systematic review based on a comprehensive database about B Corporations.

Key words: *B Corp certification, European Union, Benefit Corporation, B Lab Europe.*

1. Introduction

Today's market conditions where almost everyone is claiming to be socially responsible ask for a distinguishing kind of companies whose commitment to their both profit and non-profit goals is embedded in their core governance and management models. Out of this need the idea of developing the B Corp certificate and a new legal structure, benefit corporation, was born.

The paper gives insight into the history of the B Corp movement and discusses its global impact (in the chapter 2). The focus of the paper is on the B Corp certification in the European Union (EU). The authors elaborate the factors which enabled the growth of certified B Corporations in the EU and comment the advantages and shortcomings of holding the B Corp certificate (in the chapter 3). The purpose of the paper is to analyse the growth of B Corp certification across EU countries and to compare the differences between individual countries. By extracting data for each EU member state from the available databases and comparing the compiled results, this paper tries to give a clear review on the growth of the B Corporations in the EU, including the data from the beginning of the certification in Europe until the time of performing the analysis. Although the number of the certified B Corporations in the EU has reached the milestone of +1000 B Corps, there are significant differences in the growth across EU countries. The chapter 4 presents therefore the growth statistics and growth differences between individual EU countries and discusses the chosen factors behind differences in the growth of the B Corp certification across the EU.

The research is based on the quantitative analyses of the data extracted from the B Corp database (B Corp Impact Data and B Corp Global Directory), and on the qualitative analysis of theme-relevant literature to identify the factors which caused the different growth rates from country to country.

The analysis has indicated a set of the critical factors which have led to the growth differences in the number of B Corp certifications between EU countries. Out of these results several lessons for the future growth of the B Corp movement in the EU could be taken. The legal environment which enables the adoption of new legal structures such as the Società Benefit in Italy and the active role of B Lab's local partners are some of the critical factors which could contribute to the growth of the B Corp community in the EU countries. Those and other conclusions derived from the research are given in the chapter 5 which is followed by the list of references.

2. The growing relevance of the B Corp Movement

The B Corp Movement started in 2006 with an idea to differentiate companies who use business as a force for good from the traditional profit-oriented companies whose social goals are predominantly a tool to grow their profits as the ultimate goal. To elaborate the growing relevance of the B Corp movement, the chapter presents the short history of the B Corp movement and its global socio-economic impact.

2.1. The short history of the B Corp Movement

The certified B Corporation Movement was born out of an idea to create a legal framework and credible standards to distinguish traditional companies from the socially and environmentally responsible business sector. Due to the growing “greenwashing” activities of many companies in the marketplace, more and more leaders, investors, and entrepreneurs were asking for a new legal framework to help them follow their social goals parallel to the profit goal. Aware of the time (measured in years) needed to introduce the new legal structure (benefit corporation), a parallel effort in developing a new credible certificate was undertaken. To that end, in 2006 in the USA, three friends, Jay Coen Gilbert, Bart Houlahan, and Andrew Kassoy, cofounded B Lab (Honeyman, 2014), a nonprofit organization that serves a global movement of people using business as a force for good. The B Lab team developed a set of

performance and legal requirements which businesses must meet to become certified B Corporations (corporations beneficial to society). They created a free, easy-to-use online management tool, the B Impact Assessment that evaluates companies' performance across five main categories: governance, workers, community, environment, and customers. To become certified, companies must achieve a minimum score of 80 out of 200 points. In addition to that the companies must adopt a new legal structure that meets B Corp's Criteria (such as benefit corporation or social purpose corporation) in 2 years from gaining the certificate or modify the bylaws in their articles of incorporation in countries and states where these new legal structures do not exist. Public transparency criteria require that all certified B Corporations share their B Impact report publicly on bcorporation.net. The B Corp certificate is the first certificate that evaluates an entire company performance and offers companies a tool to measure and manage their overall impact, to recognize its weaknesses and to commit to improve (B Lab, 2023a). The B Lab approach connects aspects of many approaches including GRI (Global Reporting Initiative), HIP (Human Impact + Profit) Scorecard and Framework, LEED certification (Leadership in Energy and Environmental Design), SROI (Social Return on Investment), SVN and Wiser Earth (Olsen and Galimidi, 2008). The recertification process requires companies to improve every three years. From its foundation B Lab is constantly improving the B Impact Assessment tool which is adjusted to the size, the industry and other characteristic of the companies (complexity, location of primary operation). The credibility of the certificate is guaranteed through several mechanisms: the verification of supporting documentation from B Lab staff, complex structure review, controversial industry review, disclosure questionnaire on sensitive practices, fines, and sanctions, the review of public data and news sources on the company, the in-depth site review for 10 % of B Corps per year, an independent overseeing committee (Standards Advisory Council), the possibility of certificate revocation, e.g., when intentionally misrepresenting itself on the assessment (B Lab, 2023a; B Lab, 2021a).

The first 83 B Corps were certified in the USA in 2007 (B Lab, 2021b, 3). Since then, the number of certified B corporations has grown rapidly, and the B Corp movement has spread around the world, and across a various set of industries. In 2011 the movement has reached the number of 500 certified B Corps, in 2018 the number of certified B Corps has grown to 2000 (B Lab, 2021b, 3), and in 2022 the movement has reached the milestone of 6000+ B Corps (B Lab Europe, 2023a). Today (March 2023) there are 6472 certified B Corps across 89 countries employing 554,575 workers in 1612 industries (B Lab, 2023b).

The most B Corps (96 %) are small and medium-sized businesses valued at under 100 million dollars (Raval, 2023). Opening to more multinationals is ultimately the goal, but some individuals working in the sustainability industry believe allowing the subsidiaries of large corporations to attain the status even if the parent is not certified is a way for bigger companies to benefit from B Corp status without fully doing the work (Raval, 2023).

B Lab evolved through the years in the B Global Network including regional and local partners in the North (US/Canada) and South America (Sistema B), Europe, UK, Australia, East Africa, and Asia (B Lab, 2021b).

2.2. The global impact of the B Corp Movement

The social, economic, and environmental impact of constantly growing community of B Corps is evident in many areas: by putting people and the planet first certified B Corps are focusing on shared prosperity (Tse et al., 2023), and contributing to a more inclusive,

equitable, resilient, and regenerative economy. They make special efforts to improve their impact on the community, customers, workers, and other stakeholders and to achieve specific environmental goals by considering future generations, enhancing human development, encouraging new mindsets, behaviours, and lifestyles; and by promoting socio-political engagement (Tabares et al., 2021). In doing so, they are also positively affecting their non-financial results in the form of strategic advantages (Richardson and O'Higgins, 2019), and their economic performance, e.g., short-term growth (Paelman et al., 2020), employee productivity and sales growth (Romi et al., 2018), revenue growth (Chen and Kelly, 2014). The B Impact Assessment has recently been adopted by the United Nations to help companies evaluate their performance against the UN's Social Development Goals (Nigri and Del Baldo, 2018), and because of B Lab's and UN Global Compact' collaboration, from January 2020, companies can use a new online impact-management solution: the SDG Action Manager (Kamath, 2021).

In their 2021 Annual Report, B Lab Global presents the social impact of the B Corp movement through the following indicators: B Corp workers spent 31,892 hours doing community service in 2021; B Corps are four times more likely to hire the majority of their managers from local community; B Corps are more likely to use business models that make products and services more affordable for lower-income customers; in 2021 B Corps offset 2.1 million tons of carbons; B Corps are 4.5 times more likely to use 100 % renewable energy; B Corps are 7.3 times more likely to be carbon-neutral; more than 60 % of B Corps tie executive leadership compensation to achieving specific social and environmental metrics; 100 % of B Corps have stakeholder governance embedded in their corporate structure; nearly 25 % of all B Corps are fully owned by their employees; 87 % of B Corps provide their employees with flex-time work schedules, and 83 % offer telecommuting benefits; 69 % of B Corps offer bonuses or profit-sharing to non-executive workers (B Lab, 2022).

The B Corp community also gives importance to the issues of justice, equity, diversity, and inclusion within businesses. Regarding a pay equity, B Corps are 67 % more likely to have conducted a pay equity analysis by gender, race/ethnicity, or other demographic factors, and if necessary to have implemented equal compensation improvement plans (B Lab, 2022). The average pay ratio of the highest to lowest paid worker at B Corps is 7:1 (B Lab, 2021b, 16). Women-owned businesses are more likely to certify as B Corps (three times as likely to obtain the certificate (Grimes et al., 2017)), and over 25 % of B Corps are women-owned; B Corps are also twice as likely to have majority women management, but there is still small share of B Corps that are owned by LGBTQ (2,7 %), Black (1 %) or by people with disabilities (0,7 %) (B Lab, 2022).

B Lab has also initiated or driven the adoption of benefit corporation laws in more than 50 jurisdictions (B Lab, 2022). Local and regional B Lab communities are also active in improving the legal environment. The B Lab UK has launched the Better Business Act in April 2021 to ensure that all UK businesses are legally responsible for benefiting workers, customers, communities and the environment, and B Lab Europe and partners are engaged in Interdependence Coalition since June 2021 to lead advocacy for mandatory stakeholder governance for all European companies and aligned investor duty (B Lab, 2022).

3. The B Corp Movement in Europe

The few companies that were the first European certified B Corporations marked the beginning of the B Corp movement in Europe. Since then, and especially since the establishing of the B Lab Europe, B Lab's regional partner, the number of B Corps in the EU is constantly on the rise. To better understand the making of the B Corp Movement in Europe the chapter elaborates the factors which have led to the growth of certified B Corps and discusses the possible advantages and shortcomings of certificate as enablers/stoppers of the movement.

3.1. The enabling factors for the growth of the number of certified B Corporations

The first B corps in Europe were certified in 2012, but a significant impulse to the growth of the European B Corp Community has been the launching of B Lab Europe, one of the B Lab Global Partners dedicated to promoting and helping certification across Europe. B Lab Europe was founded in 2013 and currently oversees the growth of the movement across the continent, and mobilizes the local B Corp communities, partnerships, and ecosystems together with their country partners: Spain, Portugal, Benelux, Nordics, Germany, Italy, France, Switzerland, and Poland (B Lab Europe, 2023b). From recently there is a community of over 1200 B Corps in Europe (B Lab Europe, 2023a).

The second critical factor that enabled the growth of the number of certified B Corps were changes in the legal environment, i.e., the introduction of new legal structures that are in line with B Lab standards, such as Società Benefit in Italy (Del Baldo, 2019; Mion and Loza Adui, 2020). These new corporative forms made it easier for companies' management to pursue both profit and social goals in their daily decision making without the fear from being sued by the owners. However, managing competing stakeholder interests may prove challenging for managers and directors of benefit corporations (Koehn, 2016).

The active role of country-level organizations (e.g., B Lab UK), the growing community of B Corp partners and the joint initiatives such as Interdependence Coalition have all led to the greater interest for certification but also for the use of the B Impact Assessment tool. However, there is still work to be done, especially in some of the EU countries, such as Croatia, Romania, Malta, Lithuania, Latvia, Slovenia, Slovakia, Estonia etc., where the most business leaders are still not familiar with the B Corp certificate. The growing number of academic works on the subject is also paving the way to the expected growth of certified B Corps in the EU countries (Diez-Busto et al., 2021; Weber Kirst et al., 2021). The B Lab Europe is aware of those factors and invests much energy in the collaboration with different partners at local, national, and regional levels, including private sector, civil society, and NGO networks; public bodies and policy makers; other certification or ethical labelling bodies; multi-stakeholder initiatives and alliances; and academic institutions (B Lab Europe, 2023c).

The Covid-19 pandemic and subsequent economic crises has directed (again) many businesses toward social and environmental sustainability, globally and in the EU, and was a strong impulse for the many businesses to use the B Impact assessment and/or to submit for B Corporation certification. The global B Corp community grew by 25 % in 2020, and with the fastest growing markets outside US, including EU (B Lab, 2021b).

3.2. The advantages and shortcomings of holding the B Corp Certificate

Due to the growing number of B Corps around the globe, and due to the B Lab's commitment to improving B Corp standards and monitoring, the B Corp certificate offers a distinguishing mark, but also a supporting community of businesses with the common goal to benefit all people, communities, and the planet. The B Impact Assessment has helped many companies (not only the certified one) to rethink their impact and to improve their social and environmental performance. In 2021, recertifying B Corps increased their scores by an average of 4,4 points, and over 60 % increased scores by an average of 12 points (B Lab, 2022, 10).

By holding the certificate, companies prove that they measure up to high environmental and social standards and distinguish themselves from other traditional companies which use the social responsibility concept as mainly marketing activity to expand their customer share by misleading the consumers ("greenwashing activities). The publicly available B Impact report on bcorporation.net enhances the companies' visibility, and since 2013 the B Corps have also a possibility to stand out in a constantly growing B Corp community by reaching the status of Best for the World Honouree (in a specific impact area or overall), which shows that they are amongst the global top 5 % in their corresponding size group (B Lab, 2023c).

The assessment process often leads to innovations and practice improvements and belonging to the B Corp community enables companies to learn from and interact with other B Corporations while validating their identities (Gehman and Grimes, 2017, as in Alam et al., 2022). The rigorous standards and verification mechanisms are contributing to the certificate credibility, but there is still debate if those verification mechanisms should be improved (e.g., on-site checks at only 10 % of the B Corps per year should be probably conducted at a greater share of certified B Corps).

There is also a competition challenge on the marketplace where often the B Corps compete with traditional profit-oriented companies which do not have impact-related costs. Nevertheless, the economic performance of many B Corps is showing that they are successful on both the economic and social/environmental impact indicators. By learning to manage and improve their overall impact they also learn to improve their economic results. And empirical research has shown that employee ownership and employee involvement are positively associated with external stakeholder engagement (Winkler et al., 2019).

The concern of some part of the B Corp community regarding the above-mentioned certification of multinational corporations' subsidiaries when the parent company is not certified should also be taken in consideration when rethinking the improvement of the B Corp certificate.

The submission and the annual certification fees are also an issue to be considered when thinking of the certification or recertification process, although they include the pricing tiers dependent on the annual sales to reflect the increase in complexity required for larger companies (B Lab Europe, 2023d).

Despite the above-mentioned shortcomings certified B Corporations are successful in attracting purpose-driven employees, socially responsible investors, and socially conscious consumers to whom the certificate gives a tool to differentiate more easily the impact-driven

from the profit-driven “greenwashing” companies. However, there is still work to be done to increase consumer awareness about B Corporations (Marquis, 2020).

4. The analysis of B Corp certification growth in the European Union

4.1. The research approach and methodology

As elaborated in the previous sections, the analysis in this paper is focused on the growth of the B Corps in the EU. Databases provided by B Lab, B Corp Global Directory (B Lab Global, 2023) and B Corp Impact Data (B Lab - Data World, 2023) were analysed and used as the basis for deriving the indicators which can help to describe and compare the growth of B Corp certifications in the EU. The main characteristics of the certified B Corps (such as certification dates, short description of companies, scores of the B Impact Assessments etc.) are included in the mentioned databases. These databases contain valuable data for the analyses, further investigations as well as for the companies that want to discover examples of good practice of the B Corp movement.

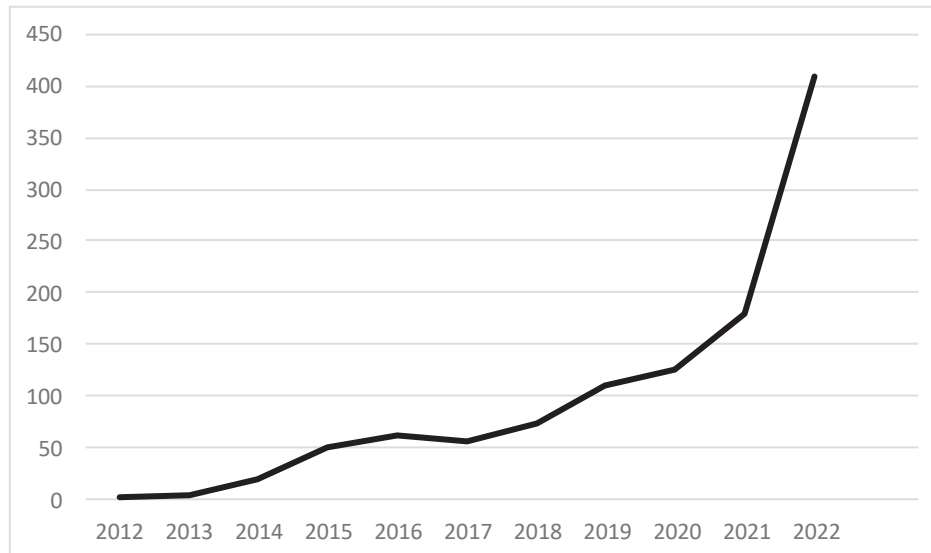
Analysed period in this part of the paper refers to 2012 until 2023, that is, it includes 2012, as the beginning of the certification in the EU and the last available data at the time of performing the analysis (from February 2023). Here can be highlighted that previous studies about the B Corp certifications in the EU, didn't include the systematic review in the mentioned period. From 2007 until 2012 EU member states didn't have companies with the B Corp certificate. In 2015 launched the European B Corp movement so it can be expected that the results after 2015 will be significantly different from the previous periods. 27 EU member states were included in the analysis. United Kingdom was excluded, because of Brexit in 2020, even though it can be seen that this country has a significant number of B Corps, and it can be interesting for some other studies about B Corps in Europe. Until February 2023, there were 1204 B Corps in the United Kingdom, with London as the important B Corp capital of the world (B Lab Global, 2023). Croatia, Latvia, Lithuania, Malta, and Romania don't have B Corps, so these countries won't be included in further analysis presented in the next section.

The authors have extracted, controlled, compiled, and compared data for the 1.123 B Corps in the EU (B Corps that have headquarters in one of the observed EU member states, from 2012 until February 2023). Some of the companies were de-certified until 2023 so these companies were not included in the results for the 2023, in the final cumulative calculations. Regarding that complete time series were constrained with the fact that most of the countries do not have certification in each year, the main changes and trends will be commented about the growth of the B Corps, where possible. Besides of the main indicators that refer to the growth of the number of B Corps, the authors have calculated average overall B impact scores for each country based on B Impact Assessments. Additional comments will be given about the number of companies that were recognized as the “Best for the world – different categories” across EU member states. As explained before, B Lab publishes list the top-performing B Corps (Best for the World™) that create impact overall, “changemakers” and through different areas such as community, customers, environment, governance, workers. The lists rely on verified scores of the B Impact Assessments.

4.2. The research results and discussion

Below, on the figure 1, are presented the indicators that imply on the growth paths of the B Corp certifications in the EU.

Figure 1: Total number of certified B Corps in the EU, 2012-2022

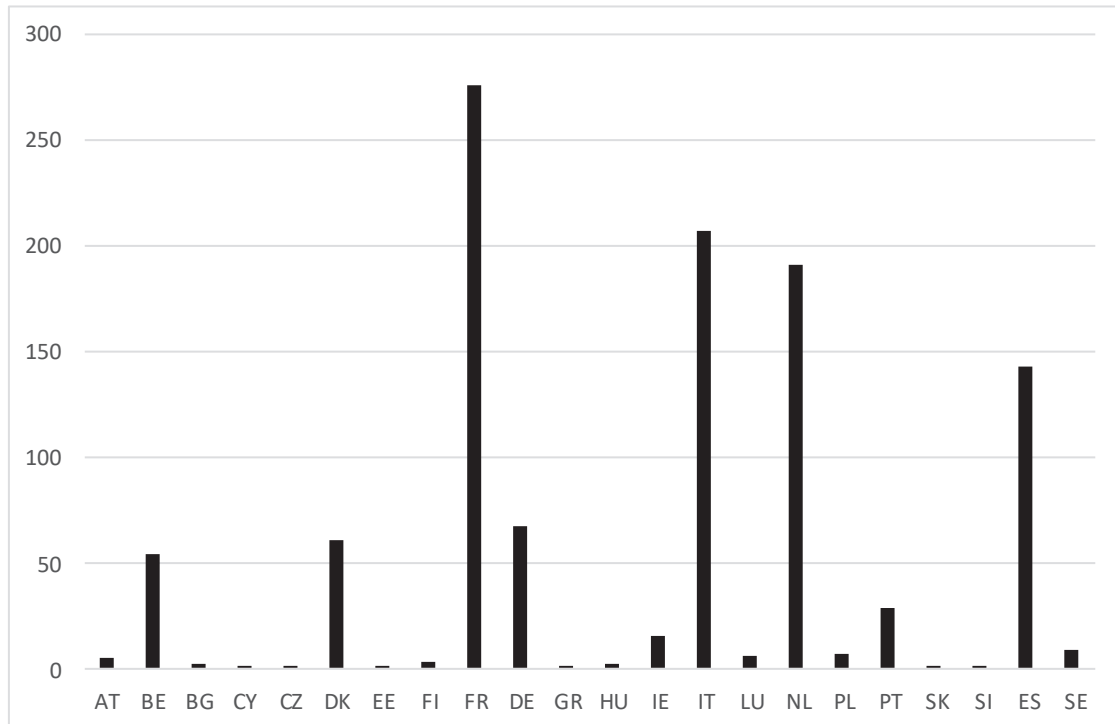


Source: authors' calculation based on B Lab Global (2023), B Lab - Data World (2023)

The growing importance of the B Corps in the EU can be confirmed based on the data about the number of B Corps in the EU from 2012 to 2022. In 2022 the number of certified B corporations in the EU was 409 (cumulative number was 1.087), in comparison with the 2012 when there was just 1 certified B Corp. We have looked in more detail at annual growth rates, where it was seen that the highest growth in the number of B Corp certifications is evident in 2013, 2014, 2015, 2019, 2022 (in comparison with the previous year). It is important to highlight that, if we look at the cumulative data about the certified B Companies in 2022 in comparison with the same data in 2020, the number of B Corps after 2020 has increased by 118,27%.

The total number of certified B corps varies significantly across EU member states which can be seen on the figure 2.

Figure 2: The distribution of the total number of certified B corps across EU member states, cumulative until 2023 (February)



Note: AT: Austria, BE: Belgium, BG: Bulgaria, CY: Cyprus, CZ: Czech Republic, DK: Denmark, EE: Estonia, FI: Finland FR: France, DE: Germany, GR: Greece, HU: Hungary; IE: Ireland, IT: Italy, LU: Luxembourg, NL: Netherlands, PL: Poland, PT: Portugal, SK: Slovak Republic, SI: Slovenia, ES: Spain, SE: Sweden.

Source: authors' calculation based on B Lab Global (2023), B Lab - Data World (2023)

France, Italy, the Netherlands, and Spain are EU member states that have the highest number of certified B Corps. EU new member states (that enter in the integration in 2004, 2007, 2013) have less than 10 certified B Corps, or do not have certified B Corps. The impact of the described factors that can influence on growth of B Corp certification should be increased.

Countries with the highest number of new B Corp certificates after 2020 were still France, Italy, the Netherlands, and Spain. Data about the growth rates of B Corp certifications across EU member states that have more than 5 certified B Corps were analysed in more detail, for the period after the 2020. Growth rates of cumulative number of certified B corps in 2022 in comparison with the cumulative number of certified B Corps in 2020 were calculated by the authors, and it was determined that the highest growth rates in the number of certified B Corps after 2020 have Belgium, Ireland, Spain, and Portugal. The growth rates of cumulative number of B Corps (2022-2020) higher than 100% were also seen in Denmark, France, Germany, Poland, Sweden, Italy, Netherlands, and Luxemburg. In the mentioned group of countries, Luxembourg, Poland, and Sweden have less than 10 certified B Corps, so this should be taken in mind when interpreting and comparing the results.

To analyse more deeply the differences between EU countries we have calculated the average overall B impact score per country, and we have extracted the data about the number of "Best for the World" B corps per country, which can be seen in the table 1.

Table 1: Average overall B impact scores for EU member states, based on B Impact Assessments and the number of Best for the World certified B Corps in the EU

Country	Overall B impact score (average)	The number of “Best for the World” companies
AT	90,42	3
BE	91,03	7
BG	97,20	0
CY	/	0
CZ	/	1
DK	94,32	5
EE	/	0
FI	88,60	1
FR	93,22	43
DE	94,87	14
GR	/	1
HU	88,50	0
IE	89,52	0
IT	92,90	49
LU	91,35	2
NL	94,97	45
PL	89,84	0
PT	91,78	5
SK	/	0
SI	/	0
ES	92,66	22
SE	87,89	0

Source: authors' calculation based on B Lab Global (2023), B Lab - Data World (2023)

Average (overall) B impact scores were calculated based on the data about the impact scores for the B Corps that have headquarters in one of the observed EU member states. In the countries that have 1 certified B Corp, the results were not included in the analysis. Also, results should be interpreted with caution for the countries that have only a few certified B corps. In the group of countries with the more than 10 certified B Corps, the highest score was determined in Netherlands, Germany, and Denmark.

The highest number of the Best for the world B corps have Italy, Netherlands, and France (expected due to the total number of B Corps in these countries). Here can be added that in the group of countries that have more than 10 certified B Corps, Germany, Portugal, and Spain also have some significant share of the Best for the world B Corps in total number of certified B Corps, a share that is higher than 15%. There are also some countries that have smaller numbers of certified B Corps, but significant share of the Best for the world B Corps that can be interesting for other companies in these countries (e. g. in Austria).

5. Conclusion

The paper contributes to previous studies of the characteristics and growth of the B Corps, especially in the EU, which can be compared with the other countries (such as the USA). The studies about the B corporations in the EU are still developing, with lack of clear reviews in this area. Period for the analysis can also be seen as the contribution of this paper in comparison with the previous analyses. Having in mind the obstacles that arise in the implementation of the concept, B Corp movement is proving to be the transforming concept that includes care for the global world, the benefit of all people, communities, and the environment, which is urgent to implement in the new development approaches. The legal environment and the active role of B Lab and the B Lab's local partners are some of the important factors that have contributed to growth of certifications.

Based on the analysis presented in the paper, the potential, and the growing interest for further developing B corporations in the EU is confirmed. The growing number of B Corp certifications from 2020 shows that B Corps were resilient at the time of the last crises. It is also presented that besides the countries that have the highest number of B Corps (France, Italy, Netherlands, Spain...), there are other EU member states with the significant growth of B Corp certification. But, the analysis confirms that in 2023 some of the EU member states still do not have certified B Corporations. The presented characteristics and examples of other countries can serve as a benchmark for the possible first certifications in these countries. Significant differences are noticed between the old and new EU member states, which can be expected due to differences in their development levels. There are B Corps that were de-certified in the observed period, which can be analysed in more detail in the further investigations.

The main aim of this study was to analyse the growth of B Corp certification and factors that contribute to results. With the higher data availability and by including other databases it is possible to connect overall data about B Corps with the data and specific indicators about companies, which could be the subject of some future work. Differences between groups of companies regarding the size of the B Corps, regional distributions of B Corps, the role of the capital cities, and the strength of the B Corps in comparison with the other companies can complement the analysis presented in this paper, and it will direct the future authors' research work. Specific analyses of the individual countries that have significant growth of B Corp certification would be also a valuable extension of this paper.

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A professional paper

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DEVELOPMENT OF THE QUALITY MARK SYSTEM (LABELING) FOR THE FAMILY ACCOMMODATION FACILITIES IN THE CITY OF SLAVONSKI BROD

ABSTRACT

Family accommodation is an important factor of the tourist development of Slavonski Brod, which accounts for slightly more than one third of the city's tourist traffic. The Tourist Board Slavonski Brod, supported by the Croatian Tourist Board, initiated the development of a project that will ultimately result in the awarding of the quality mark to the family accommodation establishments. The project is being realized by the Faculty of Economics of the University of Zagreb, with activities being implemented in five stages. In the first stage, position of family accommodation was analyzed, and in the second stage, during the last quarter of 2022, the system for managing the quality of family accommodation, including goals, processes, standards and benchmarks and ways of monitoring and improvement, was defined. As part of these activities, two focus groups were conducted, and the members of one of them were representatives of the family accommodation owners chosen in accordance with previously determined criteria (occupancy rate, period of running business, categorization, etc.). The goal of this paper is to investigate whether and to what extent the owners of family accommodation recognize the possible benefits from awarding the quality mark (the label) in the coming period, and to point out the benefits of labeling. Therefore, for the purposes of the paper, on the basis of the results of the research done by the Faculty of Economics in Zagreb, a primary research was conducted, and the online questionnaires were addressed to all owners of the family accommodation. The results of the paper, which showed that the owners of family accommodation support the development of labeling, will help them to plan efficiently and to implement marketing activities for purpose of better positioning on the tourist markets.

Key words: *labeling, family accommodation, Slavonski Brod.*

1. Introduction

An increasing number of citizens who have excess housing space decide to provide services in family accommodation. According to data from the eVisitor system, at the level of Croatia and at the level of the city of Slavonski Brod, as well, slightly more than one third of tourist traffic is realized in this type of accommodation, with the fact that in the period from 2000 to 2020, a particularly dominant growth in the number of accommodation units was observed in this particular segment (Prebežac, D., Mikulić J., 2022, 37).

In the coming period, tourism based on family accommodation will certainly remain compatible with the "image attributes" of the umbrella communication concept "Croatia, full of life" of the Croatian Tourist Board, but further perspectives for its development should no longer be sought in the growth of the volume of offer, but in its qualitative restructuring, as well as strengthening

content upgrading, which is a necessary prerequisite for better business indicators (Croatian Tourist Board, 2020, 13). In this sense, the National Strategy for the Development of Sustainable Tourism until 2030, within the chapter where development needs are described, determines the need to improve the structure and quality of accommodation establishments, including encouraging the process of awarding the quality mark (label), i.e. stronger appreciation of environmentally friendly and socially responsible business standards (Ministry of Tourism and Sports, 2022, 28).

Following the same, the Tourist Board of the city of Slavonski Brod, in cooperation with the Department of Tourism of the Faculty of Economics of the University of Zagreb, has started the project of labeling, applying the following research methods: the group interview (the focus group) and the online questionnaires research method. It is about the project that will ultimately result in awarding of the quality mark to the family accommodation establishments of the city of Slavonski Brod, all with the goal of increasing their competitiveness on the tourist markets.

2. The concept of "benchmarking" and marks (brands) of quality in tourism

Benchmarking is a process of continuous improvement of the business running of some company towards the best (Weaver, D., Lawton, L., 2006, 28), and is carried out for the purpose of analysis and comparison, primarily with the competition, in order to determine the company's problem areas and to identify ways to improve the diagnosed situation (Štoković, I., 2004, 70). Conducting of benchmarking enables grading and measuring of results and establishing norms and standards (Cetinski, V., Juričić, B., 2005, 81), thus benchmarking becomes a key element in achieving the best business results in terms of the final product, service or practice, and can be applied in every economic area, i.e. for every product and service, both in a formal and informal way (Lončarić, B., 2012, 59).

When it comes to the tourism industry, the studies that initially included hotels have over time expanded to tourist attractions and tourist destinations in general (Pyo, S., 2005, 13), taking into consideration the fact that in each case the choice of standards is important for success. At the same time, in addition to quantitative indicators such as tourist arrivals and overnight stays, capacity occupancy rates, etc., at local levels qualitative indicators should also be taken into account, since tourism is a service activity (Phillmore, J., Goodson, L., 2004, 3).

Kotler (Kotler, Ph. et al., 1999) talks about the strategy of positioning and determining the brand of a product in tourism as a continuous research of the image of a tourist destination among certain target groups through which the comparative advantages of the destination are determined, the factors that influence the image of the destination are investigated, changes in the image over a longer period of time are created, crisis situations related to the image are managed and relevant messages to different audiences are sent. At the same time, the starting point for the creation of this strategy is the vision that is achieved by comparing the elements with which we attract guests, help them decide to make a visit and make them loyal. (Balakrishnan, M.S., 2009, 621). In any case, it is a process that results in the creation of a destination brand, whereby a destination (product) brand can be defined as a characteristic name and/or symbol (such as a logo, trademark or packaging design) whose purpose is identification of the goods or services of one or groups of sellers and differentiation of these goods from competitors' goods (Aaker, D., 1991, 7).

Creating the brand image of tourist destinations is a long-term and not at all a simple process. It includes the evaluation of the image by visitors and target market groups, and it has become

one of the most popular concepts in the field of marketing, often much more important than the actual characteristics. At the same time, it should not be forgotten that the prerequisite for creating an effective image of a destination is primarily the use of the results of primary research that should be carried out beforehand, whereby different methods, such as attitude research, questionnaires, focus groups or in-depth interviews, can be used (Lončarić, B., 2012, 233), starting from different criteria for defining a brand, including quality, sustainability and environmental factors (European Parliament, 2018, 15). In any case, the goal of the brand definition process is to create the logo, slogan and visual identity of the destination, and all for the sake of its best possible positioning on the tourist markets.

When it comes to the logo, if it is to be achieved to make it effective as a marketing tool, the logo should be unique and consistent with the new image that the destination is trying to achieve, using distinctive features (Gabor, K., 2006). Unlike logos, slogans transmit a certain marketing message that contains certain suggestive information about the destination. In both cases, what should be taken into account is that both the logo and the slogan must reflect the real offer, regardless of which positioning element is emphasized (nature, people, culture, gastronomy, etc.), starting from the fact that the quality of the tourist products actually represents the sum of the quality of the material and immaterial components of everything that is offered to the guest and leaves an impression on him (Ružić, D., 2007, 196).

3. Branding of the city of Slavonski Brod as a tourist destination

Starting from the fact that the key distinguishing elements of the tourist product of the city of Slavonski Brod, along with contemporary cultural production with nationally known events, the recognizable Slavonic culture of life and work and a whole series of possible activities in nature in a wider gravitational area, are also the Fortress Brod as a nationally known and recognizable tourist attraction, the Sava river and its banks, which represent the image of the city and the waterway, and well-known personalities such as Ivana Brlić Mažuranić, Dragutin Tadijanović, Branko Ružić, Mia Čorak Slavenski and Vladimir Becić (Institute for Tourism, 2010, 116), the Tourist Board of the city of Slavonski Brod, in September 2010, conducted primary research on the image of the city of Slavonski Brod as a tourist destination (Lončarić, B., 2014, 240). In the research conducted through questionnaires, 700 city inhabitants participated, of which 40.00% were under the age of 25. The results of this research showed the following: almost 50.00% of respondents believe that the city of Slavonski Brod is not exclusively an industrial city; more than 70.00% of respondents perceive Slavonski Brod as a city open to new ideas, and more than half of them as a city that can bear the epithet "friendly", "picturesque" and "suitable for relaxation". An interesting fact was also that more than 75.00% of respondents would not limit the tourism development of the city, if they were in a position to decide (Tourist Board of the City of Slavonski Brod, 2010, 240).

In continuation of the realization of the branding project of the city of Slavonski Brod, the Tourist Board of the city of Slavonski Brod cooperated with the Faculty of Graphics of the University of Zagreb in such a way that during December 2010 and January 2011 it organized a competition among its regular students on the topic of creating the visual identity of the city of Slavonski Brod, with previously established key distinguishing elements of the city's tourist product as a starting point. The students' proposed solutions were evaluated by the judging commission consisting of the representatives of the Tourist Board of the city of Slavonski Brod, the Institute of Tourism and the Department of Graphic Design of the Faculty of Graphics. As one of the accompanying activity, an electronic public voting was also organized. In this voting

3.622 respondents took part and their votes were treated as the voice of one member of the commission (Lončarić. 2014, 240).

Figure 1: Visual identity of the city of Slavonski Brod as a tourist destination



Source: Book of graphic standards for the visual identity of the city of Slavonski Brod, Faculty of Graphics, University of Zagreb, Zagreb, 2011, pp. 1

After the competition, in May 2011, the book of graphic standards for the winning solution was created, including a number of practical solutions. As can be seen from Figure 1, the basic elements of the brand concept are paper boats, in the colors characteristic for Slavonian Posavina, which move (rotate) along the route of the Cavalier of Brod Fortress. The corresponding slogan which was added to the logo associates to the children's writer Ivana Brlić Mažuranić, who wrote the largest number of her fairy tales in Slavonski Brod.

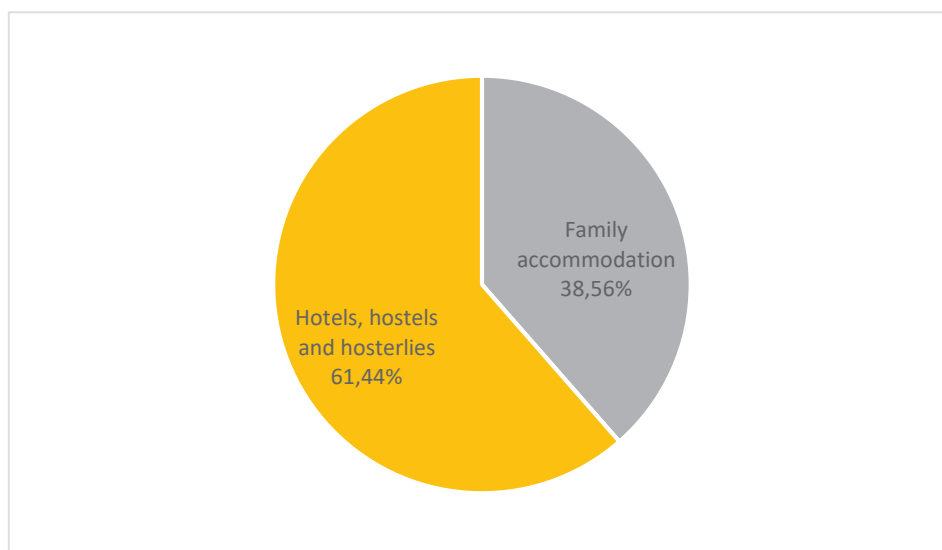
During the past period, from the time of introduction of the visual identity until today, this visual identity has been implemented at the local level to a satisfactory extent, including primarily the public and, to a lesser extent, the private sector.

4. Branding of family accommodation in the city of Slavonski Brod as a tourist destination

4.1. Family accommodation in the city of Slavonski Brod – quantitative indicators

According to data from the eVisitor system from February 2023, there are currently 1.040 beds in the city of Slavonski Brod, of which 42.02% are in family accommodation, i.e. in rooms, apartments and houses for rest.

Figure 2: Tourist traffic in the city of Slavonski Brod, according to types of accommodation establishments, in 2022



Source: eVisitor system, February 2023

As can be seen in Figure 2, in 2022, 38.56% of the total tourist traffic, i.e. 15.394 overnight stays, was realized in the city's family accommodation, which, according to the data from the eVistor system, is 43.67% more than the previous year.

With further insight into the data from the eVisitor system, it can be concluded that the increase in tourist demand for accommodation in the city of Slavonski Brod implicitly leads to a sharp increase (by 2.65 times) in the number of beds in the city's family accommodation, in the period from 2016 to 2022.

It should also be said that previously conducted research has shown that, when it comes to the profile of guests who spend the night in family accommodation establishments, these tourists are mostly tourists in transit who are on the way to their destinations, further, participants of private gatherings, sports competitions and other social events, and, in times of the year with more favorable weather conditions, also construction and seasonal workers (Lončarić, B., 2022, 424).

4.2. Cooperation with the Faculty of Economics of the University of Zagreb in the implementation of the project of awarding quality marks to family accommodation establishments of the city of Slavonski Brod

According to the provisions of Article 32, Paragraph 1 of the Law on Tourist Boards and the Promotion of Croatian Tourism, among the tasks of tourist boards in the Republic of Croatia, in the product development segment, there is "managing the quality of the offer in the destination". When it comes to local levels, and according to the guidelines from the Methodology and mandatory instructions for creating annual work programs and reports on the realization of annual work programs, determined by the Ministry of Tourism and Sports, local tourist boards are developing a system for marking the quality of tourist products, focusing on the tourism industry, in the following areas: labeling the quality of family accommodation and generally awarding quality marks in coordination with the regional tourist board; cooperation

with renowned providers of quality marking services and cooperation with holders of the tourist offer by products in order to raise the quality of the offer in the destination (cooperation of tourist boards with restaurateurs, hoteliers, etc.).

In accordance with the general recommendations of the competent bodies for the initiation of development projects and the creation of new tourist programs with the aim of improving the quality and market position of existing and developing new tourist products, the Tourist Board of the city of Slavonski Brod in cooperation with the Department of Tourism of the Faculty of Economics of the University of Zagreb started the realization of the project "Establishment of a quality label awarding system (labeling) for family accommodation establishments in the city of Slavonski Brod". The main goal of the project is to establish the system, standards and benchmarks for managing the quality of family accommodation in the city of Slavonski Brod, in order to raise the level of quality of services provided by these establishments and to strengthen market recognition and enable an increase in the level of competitiveness of this type of accommodation.

As a component of the project of labeling, different, interrelated activities to be undertaken were determined, including: analysing the situation on the family accommodation market in the city of Slavonski Brod (structure, features, specificities, market position, comparative and competitive advantages, market potentials and other); establishing a system for managing the quality of family accommodation (determining goals, processes, standards and benchmarks, methods of monitoring and improvement); developing criteria, protocols and procedures for establishing a quality system for family accommodation and awarding a quality mark (certification and recertification procedure, establishment and management of the register); defining the name and designing the appropriate visual identity of the family accommodation quality mark and preparing a promotional campaign for the adopted family accommodation quality marks and implementing of the project) (Prebežac, D., Mikulić, J., 2022, 2).

At the beginning of the project realization, the state of the family accommodation market in the city of Slavonski Brod was analyzed, and within the framework of the same, a SWOT analysis of the future development of tourism in the city of Slavonski Brod, which relies on family accommodation capacities, was carried out. The second stage of the project included two focus groups which were held in the second half of 2022, with the aim of determining attitudes, opinions, preferences and expectations regarding the need of monitoring the quality level of family accommodation and introducing a quality label for this type of accommodation. While the participants of the first focus group were 9 representatives of the local administration and self-government units and representatives of the institutions and economic associations from the area of the city of Slavonski Brod and the Brod-Posavina county, the second focus group included 6 representatives of family accommodation sector from the city of Slavonski Brod, chosen according to previously established different criteria (occupancy rate, years of running business, categorization).

In a discussion that lasted 90 minutes for each focus group, the participants gave their opinion on certain aspects of the researched issue in an informal conversation. They also fulfilled 4 questionnaires, with the aim to determine how participants of the focus groups individually assess the significance of certain factors of importance for the development of the quality mark of family accommodation.

Table 1: Benefits of the "family accommodation quality mark" for the owners of the family accommodation establishments and the tourism system in the city of Slavonski Brod - content of the research questionnaire

POSSIBLE BENEFITS	IMPORTANCE				
	5	4	3	2	1
Quality mark is a supplement to the existing system of categorization of family accommodation.	5	4	3	2	1
It raises the level of competitiveness of family accommodation.	5	4	3	2	1
It raises the level of quality of services of family accommodation.	5	4	3	2	1
It strengthens the recognizability of the family accommodation establishments.	5	4	3	2	1
It encourages whole-year business and higher occupancy rate.	5	4	3	2	1
It encourages the family accommodation establishments to specialize according to needs of certain target groups (developing of thematic family accommodation establishments).	5	4	3	2	1
It creates an emotional connection between the guest and the accommodation establishment and the destination.	5	4	3	2	1
It creates more permanent relationship with guests (loyalty).	5	4	3	2	1
Quality mark of family accommodation can be connected with other quality marks of tourist offer (<i>premium offer</i>).	5	4	3	2	1
It encourages creation of partnerships with providers of accompanying services.	5	4	3	2	1
It strengthens the promotion of the family accommodation establishments by tourist boards.	5	4	3	2	1
Implementation of targeted promotional campaigns for the adopted quality mark of family accommodation in the target markets.	5	4	3	2	1

Rate the importance of each possible benefit on a scale of 1 to 5, where: 1=completely unimportant, and 5=extremely important.

Source: Report on the phased realization of the project "Establishment of a system of awarding the quality mark to the family accommodation establishments of the city of Slavonski Brod", November 2022, pp. 23

In one of the research questionnaires (Table 1), the respondents evaluated certain possible benefits from awarding the quality mark, in such a way that they rated the importance of certain benefits on a scale ranging from 1 (completely unimportant) to 5 (extremely important).

In addition to this questionnaire, the focus group participants also filled out other questionnaires, thus evaluating the importance of the external and internal arranging of the family accommodation establishments, in different segments. Thus, in relation to the external arranging, the respondents, in the range from 1 to 5, were to evaluate the importance of the presence of traditional elements on the building; look of the facade, yard and terrace of the

building; horticultural elements; the possibility for safe parking; the existence of the markings on the building itself and the tourist signing towards the building along the roads.

Regarding the interior elements, in the same range, the respondents evaluated the importance of the general impression (appropriate for the climate and destination); decoration of the building and rooms with photos and things that show the sights, attractions and traditions of the city of Slavonski Brod and the Brod-Posavina county; existence of a quality free Internet service; existence of a safe for valuables in the room or at the reception; offer of additional original, authentic and mutually complementary services (except accommodation) in the establishment; authentic offer of food and drinks, including local products and having at disposal promotional materials of the Tourist Board of the city of Slavonski Brod and the Tourist Board of the Brod-Posavina county.

The importance of various features of the business in individual accommodation establishments, through which these accommodation establishments can be differentiated from other accommodation establishments, was also evaluated. The respondents evaluated the ways for obtaining information about the accommodation establishment and within that the possibility of booking accommodation, modifying reservation and do the payment for accommodation by guests; hospitality of the host (staff); knowledge of foreign languages by staff (hosts); qualification of host (staff) to provide catering services; welcoming guests in a special (personalized) way; personality in host's communication with guests; availability of information on basic and supplementary services offered in the establishment and on services outside the establishment (in restaurants, museums, sports establishments, etc.), as well as on the tourist offer at the local and regional level; the working hours of the reception from 0 to 24 hours or the existence of an alternative way in which the guest can contact the host if necessary; ways how guests can record their opinion on (dis)satisfaction with accommodation and other elements of the offer in the destination; ways of promoting the establishment; owning websites and/or profiles on social networks of the establishment; expressing welcome; developing activities that have the function of creating a sense of security for the guest and running business according to the principles of green and socially responsible business.

4.3. Results of primary research on the topic of possible benefits from the quality label awarding to the family accommodation conducted in November 2022

The results of the focus groups held in November 2022, as a form of primary exploratory research (Prebežec, D., Mikulić, J., 2022, 13) were summarized by the representatives of the Department of Tourism of the Faculty of Economics of the University of Zagreb in January 2023.

The results of this research in the segment of evaluating the importance of the external and internal elements of the family accommodation establishments and different characteristics of their business are presented below:

- the members of the first focus group gave an average grade of 4.21 to the importance of the external elements, and the members of the second focus group gave to this element an average grade of 4.10
- among the external elements, the members of the first focus group gave the highest grade (4.67) to the look of the facade, yard and terrace of the building and to the possibility for safe parking, and the lowest (3.67) to the tourist signing towards the building along the roads

- among the external elements, the members of the second focus group gave the highest grade (4.67) to the existence of the markings on the building itself, and the lowest (3.17) to the presence of traditional elements on the building
- the members of the first focus group gave an average grade of 4.25 to the importance of the internal elements, and the members of the second focus group gave to this element an average grade of 4.07
- among the internal elements, the members of the first focus group gave the highest grade (4.56) to the general impression and to the authentic offer of food and drinks, and the lowest (3.75) to the existence of a safe for valuables
- among the internal elements, the members of the second focus group gave the highest grade (5.00) to the existence of a quality service of free Internet use, and the lowest (3.33) to the authentic offer of food and drinks and the existence of a safe for valuables
- the members of the first focus group gave an average grade of 4.50 to the importance of different characteristics of running business in individual accommodation establishments, and the members of the second focus group gave to this element an average grade of 4.66
- among the elements of different characteristics of running business in individual accommodation establishments, the members of the first focus group gave the highest grade (5.00) to the activities that have the function of creating sense of security in the accommodation establishment, and the lowest (4.00) to the ways in which guests can record their opinion about (dis)satisfaction with accommodation and other elements of the offer in the destination
- among the elements of different characteristics of running business in individual accommodation establishments, the members of the second focus group gave the highest grade (5.00) to the hospitality of the host (staff) and to the existence of own websites and/or profiles on social networks, and the lowest (4.17) to the qualifications of the host (staff) to provide catering services according to the principle of green and socially responsible business.

4.4. Methodology of primary research on the topic of possible benefits from the quality label awarding to the family accommodation conducted by the Tourist Board of the city of Slavonski Brod in February 2023

Members of both above mentioned focus groups, during the primary research conducted in November 2022, also evaluated the possible benefits of awarding the quality mark, and the Tourist Board of the city of Slavonski Brod conducted an identical primary research during the first half of February 2023. The research was done using the online questionnaires.

The goal of the research carried out by the Tourist Board was to determine the attitudes of the entire sector of family accommodation owners from the city of Slavonski Brod and to compare them with the attitudes of respondents from the focus groups.

Questionnaires were sent to the e-mail addresses of all 57 owners of the 77 family accommodation establishments in the city, and the research questions were answered by 21 of them (36.84% of the total number).

4.5. Comparison of the results of primary research on the topic of possible benefits from the quality label awarding to the family accommodation conducted in November 2022 and in the February 2023

Results of the primary research conducted among the members of the focus groups in November 2022 compared with the results of the primary research conducted among the family accommodation owners in February 2023 are presented in Table 2.

Table 2: Results of the primary research conducted in November 2022 and in February 2023

	POSSIBLE BENEFITS	FIRST FOCUS GROUP	SEC. FOCUS GROUP	FAM. ACCOM.OWNERS
1.	Quality mark is a supplement to the existing system of categorization of family accommodation.	4,89	4,50	4,29
2.	It raises the level of competitiveness of family accommodation.	4,67	4,50	4,14
3.	It raises the level of quality of services of family accommodation.	4,78	4,00	4,05
4.	It strengthens the recognizability of the family accommodation establishments.	5,00	5,00	4,33
5.	It encourages whole-year business and higher occupancy rate.	4,63	5,00	4,19
6.	It encourages family accommodation establishments to specialize according to needs of certain target groups (developing of thematic family accommodation facilities).	4,44	4,60	4,19
7.	It creates an emotional connection between the guest and the accommodation establishment and the destination.	4,67	4,50	3,95
8.	It creates more permanent relationship with guests (loyalty).	4,22	4,83	4,10
9.	Quality mark of family accommodation can be connected with other quality marks of tourist offer (<i>premium offer</i>).	3,78	4,33	4,10
10.	It encourages creation of partnerships with providers of accompanying services.	4,25	4,67	4,05

	POSSIBLE BENEFITS	FIRST FOCUS GROUP	SEC. FOCUS GROUP	FAM. ACCOM.OWNERS
11.	It strengthens the promotion of the family accommodation establishments by tourist boards.	4,67	4,83	4,52
12.	Implementation of targeted promotional campaigns for the adopted quality mark of family accommodation in the target markets.	4,78	4,50	4,33

Source: Report on the phased realization of the project "Establishment of a system of awarding the same quality for the family accommodation establishments of the city of Slavonski Brod for 2022." November 2022, pp. 27, 35 and the research of the Tourist Board of Slavonski Brod, February 2023

4.6. Discussion of the primary research results

By comparing the results from Table 2, the following findings have been reached:

- the benefits of the quality mark awarding were recognized both by the participants of the focus groups and by the entire sector of family accommodation owners
- the members of both focus group gave the highest grade of "5.00" to "strengthening of the recognizability of family accommodation establishments"; the members of the second focus group also gave the grade of "5.00" to „encouraging whole -year business and higher occupancy rate“, while the family accommodation owners gave the highest grade of "4.52" to "increased promotion of establishments with a quality label by tourist boards"
- the overall benefits from the awarding of the quality mark were evaluated by the members of the focus groups with a slightly higher average grade (4.59) in relation to the family accommodation owners who rated the overall benefits with an average grade of „4.19“
- only two benefits were evaluated with the grade lower than "4.00"; namely, "the possibility of connecting the quality mark of family accommodation with other quality marks of other forms of tourist offer" was given by the members of the first focus group the grade of "3,78" and "creating an emotional connection between the guest and the accommodation establishment and the destination" was given by the family accommodation owners the grade of "3.95"
- the sector of family accommodation owners gave the very high grade of "4.33" to "the stronger recognizability of the family accommodation establishments" and to "the implementation of targeted promotional campaigns for the adopted quality mark of the family accommodation establishments in the target markets", while „the importance of the quality mark as a supplement to the existing system of categorization of family accommodation" was given by this sector the grade of "4.29".

5. Conclusion

The favorable geographical position of the city of Slavonski Brod is one of the main factors of the increase in tourist demand for accommodation and of the continuous increase in tourist traffic by guests in transit who pass through Slavonski Brod on their way to their final destinations.

The demand for family accommodation is growing throughout Europe, and the growth rate of this sector, which is introducing numerous innovations, is faster than the growth rate of hotel accommodation (Hulten, S., Perret, S., 2019). This trend is also recognized by the resident population, so the number of those with "excess housing space" who decide to provide accommodation services as an additional activity is growing.

As the needs of modern tourists, including those "in transit", are becoming increasingly complex, with an emphasis on quality as a key component of the tourist offer, there is a need to introduce criteria of excellence in the family accommodation segment as well. The same has been recognized by the Croatian Tourist Board, which has just launched research within the project "Analysis of the characteristics of family accommodation" (Croatian Tourist Board, 2023, 1), which starts with the development of a system for awarding quality marks to owners of family accommodation from all over Croatia.

Growth in the number of accommodation establishments in the family accommodation and its quality are in a function of tourism development of the city of Slavonski Brod, and through the implementation of the last year started project of awarding quality marks to the family accommodation establishments, this sector will achieve numerous benefits and will be generally accepted. It was confirmed by the results of both primary research, explained in the previous chapter, conducted by the Department of Tourism of the Faculty of Economics of the University of Zagreb and by the Tourist Board of the city of Slavonski Brod.

The possible benefits from the awarding of the quality mark are recognized by both the public and private sector, and the confirmation for the same are the high grades given by the respondents of the primary research done by questionnaires, including the members of the focus groups and the family accommodation owners of the city of Slavonski Brod, as well.

In the coming period, the Tourist Board of the area „Slavonski Brod-Posavina“ as the legal successor of the Tourist Board of the city of Slavonski Brod, in cooperation with the Department of Tourism of the Faculty of Economics of the University of Zagreb, will realize the further stages of the project of awarding quality marks to the family accommodation establishments in the city of Slavonski Brod and its surroundings. First of all, criteria, protocols and procedures for awarding the quality label to the individual family accommodation establishments will be determined, using the inputs obtained through the previous conducted primary research. Afterwards, the field pilot study will be conducted, and this in order to test the proposed concept in practice.

The final stages of the project (designing the visual identity of the family accommodation quality mark; defining the way of conducting the certification and recertification procedure and organizing and maintaining the register; preparing a promotional campaign for the establishments that have been awarded the quality mark) should be realized by the end of 2023.

We hope that the results of this work will help the owners of family accommodation from the city of Slavonski Brod and its surroundings to efficiently plan and implement marketing activities and develop a competitive spirit, all in the function of better positioning of their establishments on the tourist markets.

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PRICING OF DOWNSIDE HIGHER-ORDER CO-MOMENT ON THE CROATIAN STOCK MARKET

ABSTRACT

This research examines the role of the downside higher-order co-moment when pricing securities on the Croatian stock market. Since the distribution of stock returns is generally skewed, the downside risk becomes relevant and it is usually measured by the downside beta. The downside beta is generally defined as a modified measure of a systematic risk that takes into account only deviations in stock returns that are below the average market return. Extending downside beta to account for a systematic co-skewness risk in the downside framework, a new measure is defined – downside co-skewness. Compared to the downside beta, the downside co-skewness has a higher potential to capture risk in the downside, as a result of a better ability to capture market returns' movements by the squared market returns compared to excess market returns. This research aims to determine whether the downside higher-order co-moment can be used as a proxy for the stocks' expected return and whether the downside co-skewness is a better explanatory variable of monthly returns than downside beta on the Croatian stock market. Monthly returns of 64 stocks listed on the Zagreb Stock Exchange and included in the CROBEX index at some point in time from January 2005 to April 2019 are used. The methodology consists of the time-series analysis of the risk premium and panel data regression analysis, performed both in-sample and out-of-the-sample. The findings show that the downside co-skewness is able to capture risk in the downside since the estimated risk premiums are statistically significant. This is not the case for the downside beta, a common measure of loss aversion, which did not yield statistically significant risk premiums. This raises the question of loss aversion awareness and rewards for it on the Croatian stock market in respect of the downside beta. In that view, results indicate that downside co-skewness may be a more convenient explanatory variable of asset pricing than the downside beta.

Key words: *Downside framework, Downside beta, Downside co-skewness, Expected return estimation, Croatian stock market.*

1. Introduction

Along with the criticism to which the Capital Asset Pricing Model (CAPM) is often exposed, variations of the model have appeared including different risk measures analogous to beta from CAPM which successfully explain cross-sectional variation in returns. CAPM is built on a mean-variance framework where variance defines both extreme gains and losses as undesirable. However, in the real world, investors are more concerned about losses in the context of investments and the most important goal is safety from such losses. This is well-known as the safety-first rule defined by Roy (1952). According to him, the investor will prefer the investment with the least probability of its performance below the specified limit (the level of disaster). Since Roy published his research three months after Markowitz, he did not become as well known as Markowitz, but still offered a very useful tool in portfolio analysis, the variability-reward relationship using a defined level of disaster. Also, it is less known that Markowitz considered semi-variance as a measure of risk, rather than the commonly used measure of risk, variance (Markowitz, 1959, 194). Semi-variance, similar to variance, or standard deviation, describes the average deviation of the return from the expected return of the investment but it takes into account only deviations below the expected return (downside deviations).

The downside risk is only relevant for skewed distributions of asset returns. When it is negatively skewed, downside returns are usually larger than upside returns, meaning assets with negative (co)skewness will be disliked by investors with non-increasing risk aversion. Co-skewness can be considered as a measure of the marginal contribution of the individual asymmetry to the asymmetry of the total market portfolio. Investments that reduce the positive asymmetry in the portfolio (have negative co-skewness) are less desirable to investors and investors will require higher returns (Sihem and Slaheddine, 2014, 147). On the other hand, positive skewness is generally preferred. Namely, positive asymmetry indicates that investors can expect frequent small losses and several significant gains, with some probability that these gains will cover losses from the investment. Consequently, investors would more appreciate positively asymmetric distributions of investment returns (co-skewness) for which they will be willing to pay a premium (Galagedera and Brooks, 2007, 215).

Many studies examined an extended CAPM in the presence of higher distribution moments given the fact that the first two moments were not sufficient for the description of the asset returns distribution. Harvey and Siddique (2000) examined extended CAPM in which they included a co-skewness measure analogous to beta in CAPM which was successful in explaining cross-sectional variation in returns. Smith (2007) confirmed the importance of co-skewness in explaining the cross-sectional variation of asset returns. In his research, he finds the most interesting that investors care more about co-skewness risk when the market is positively skewed than when the market is negatively skewed (Smith, 2007, 112).

Research for the Croatian stock market (Lovretin Golubić, 2022a, 2022b) showed that downside beta, as a common measure of loss aversion, did not yield statistically significant risk premiums which raised the question of loss aversion awareness and reward, and also showed that co-skewness can be used as a proxy for the expected return on the Croatian stock market. Following the work of Galagedera and Brooks (2007) and Galagedera (2009), this paper incorporates two streams of research: (1) higher-order co-moment – co-skewness, (2) in a downside framework. Galagedera and Brooks (2007) argued that co-semi-variance and co-semi-skewness between security returns and market portfolio returns may be alternative measures of downside risk. The main goal of this research is to determine whether the downside co-skewness can be used as a

proxy for the stocks' expected return and to test whether the downside co-skewness is a better explanatory variable of monthly returns than downside beta on the Croatian stock market.

The contribution of this research is in combining two aspects of returns distribution features: higher-order co-moment and downside risk. As per the authors' knowledge, this is the first attempt to test such downside risk measures on the less developed stock market. Namely, similar researches for developed stock markets do exist and often have inconsistent findings. However, less developed stock markets, such as the Croatian stock market, bear their own specifics that attract special attention of researches and practitioners. In addition, in this paper both in-sample and out-of-sample analyses are performed to test whether downside co-skewness is a more appropriate measure of downside risk on the Croatian stock market than downside beta. Lastly, instead of the application of the usually used Fama-MacBeth regression analysis, this paper utilizes panel data analysis to ensure more robust results of the performed analysis.

The paper is structured as follows. After the introduction, the second section gives a relevant literature overview, whereas the third section describes the data and methodology of this research. The final two sections present the discussion of the obtained results and concluding remarks.

2. Literature review

Downside risk measures were the focus of early research performed by Hogan and Warren (1974), Bawa and Lindenberg (1977), and Harlow and Rao (1989). The downside beta considers only deviations in stock returns that are below the average market return. Downside beta is a measure of systematic risk under the conditions of the "expected return – semi-variance" model, the downside risk model. In analyses, such a model is called the downside CAPM, in which the downside beta is an appropriate measure of systematic risk (Abbas et al., 2011, 194). In essence, it is not a modified CAPM, but a modified single-factor model. For instance, Lettau et al. (2014) tested downside CAPM with not only stock returns, but also stock index option returns, government bond returns, commodity returns, and foreign exchange returns. The results showed that the power to describe the cross-sectional variability of returns of all these asset classes is greater if the downside beta is used instead of beta, the usual measure of systematic risk. Estrada (2002) showed that downside beta is superior to the beta coefficient in explaining cross-sectional variation in stock returns. Ang et al. (2006) showed that stocks with higher downside beta achieve higher returns for their investors. Galagedera (2007) used emerging markets index returns and concluded that the power of beta and downside beta to explain cross-sectional variation of returns also depends on the standard deviation, skewness, and kurtosis of the market portfolio distribution. He also concluded that the choice of risk measure might depend on the market being investigated. Tahir et al. (2013) concluded that the downside CAPM is eligible to be a strong contender compared to CAPM for a risk-return relationship. Tsai et al. (2014) showed that the expected stock market returns are more effectively explained by the downside beta than by the CAPM beta.

Besides downside beta, another stream of research is focused on additional risk measures related to the downside framework. Research by Kelly and Jiang (2014) focused on systematic downside risk and estimated stock returns using a risk measure based on the tail of the distribution (tail risk). Bali et al. (2014), instead of systematic downside risk, constructed a tail risk measure that depends on the covariance between individual stock returns and the market

return with the condition that stock returns are in the lower tail of their distribution. Such a measure is called hybrid tail covariance risk, which enables the estimation of the expected stock returns. Another risk measure is tail beta tested by Van Oordt and Zhou (2016). They investigated whether stocks with high tail beta receive higher average returns. They found that assets with higher tail betas are associated with significantly larger losses during future extreme market downturns.

As already mentioned in the introduction, an additional stream of research examined the higher-order moments of the asset returns distribution. Kraus and Litzenberger (1976), Friend and Westerfield (1980), and Harvey and Siddique (2000) tested modified CAPM with the inclusion of asymmetry on required returns. Their outcomes were very similar leading to the conclusion that the investors have preferences for positive asymmetry in their portfolios and that stocks with negative co-skewness are less desirable so the investors will require higher returns. Research that tested both downside beta and co-skewness was performed by Teplova and Shutova (2011) and Alles and Murray (2013). Teplova and Shutova (2011) showed that downside beta is more feasible for explaining cross-sectional return variations in the Russian stock market relative to the beta coefficient. Also, the higher-order moments of distribution co-skewness and co-kurtosis contribute to the explanatory power of the model. Alles and Murray (2013) showed that both downside beta and co-skewness are priced by investors in emerging Asian markets. Their further testing confirmed a separate premium for each measure, confirming that they capture different aspects of downside risk. Galagedera and Brooks (2007) and Galagedera (2009) investigated higher-order moments in the downside framework. They showed that for emerging markets that downside co-skewness might be a better measure of risk compared to the beta and downside beta.

When it comes to the research for the Croatian market, research can be also divided into stream related to downside risk measures and higher-order moments. Vidović and Aljinović, (2009) performed some basic analysis related to the normality tests of daily stock returns from Central and South Eastern European countries. The research confirmed the existence of the skewness and kurtosis of stock returns providing grounds for further research on the Croatian stock market. Marasović (2016) used the lower semi-absolute deviation as a measure of risk for a model for portfolio rebalancing with included transactional costs. Marasović (2009) and Poklepović et al. (2015) used semi-variance as a risk measure. Dolinar et al. (2017, 2019) used semi-deviation and Lovretin Golubić (2022a) downside beta and co-skewness as a proxy for the expected return estimation. The idea to approximate expected return with the risk measure has roots in Martellini (2008) and Amenc et al. (2011) research who claim that the use of a risk measure should improve the estimation of the parameter, especially when the less developed and less liquid market is in question, like Croatian stock market.

Concerning the higher-order moment's research for the Croatian market, Škrinjarić (2013) demonstrated that the inclusion of higher moments into the optimization substantially changes the efficient portfolio. Gardijan and Škrinjarić (2015) analyzed basic CAPM and higher-moment CAPM. The results indicated that a negative relationship exists between risk (variance) and return, whereas a positive relationship exists between return and the systematic third and fourth moment. Zoričić et al. (2019) besides standard deviation and semi-deviation used skewness and kurtosis as risk measures. Only skewness as a risk measure was able to capture the risk premium. Also, research findings detected low-variability anomaly which was present in the market in the post-crisis period in the case of standard deviation and semi-deviation respectively.

3. Data and methodology description

In this paper, 64 stocks that were listed on the Zagreb Stock Exchange (ZSE) and included in the CROBEX index at some point in time in the period from January 2005 to April 2019 are considered. This research sample originates from the doctoral thesis of Zrinka Lovretin Golubić (Faculty of Economics & Business, University of Zagreb, 2022). Over the entire observed period, monthly excess returns (total returns above the risk-free rate) are used. As a proxy for the risk-free rate, three-month Croatian Treasury bill rates are used.

The literature proposes several measures of downside risk. The downside beta is calculated for the observed period according to the following formula (Bawa and Lindenberg, 1977):

$$\beta^- = \frac{\frac{1}{N-1} \sum_{t=1; r_m < \mu_m}^N (r_{it} - \mu_i)(r_{mt} - \mu_m)}{\frac{1}{N-1} \sum_{t=1; r_m < \mu_m}^N (r_{mt} - \mu_m)^2} \quad (1)$$

where r_{it} (r_{mt}) is the stock i 's (the market's) excess return in time t and μ_i (μ_m) is the average stock's (market's) excess return. The return of the CROBEX index is used as a proxy for the market return. The numerator can be referred to as the co-semi-variance of the stock i 's excess returns and the market's excess return in the downside framework.

Further on, a measure of systematic downside co-skewness risk is defined as follows using the same variables as in formula (1) (Galagedera and Brooks, 2007, 217):

$$\psi^- = \frac{\frac{1}{N-1} \sum_{t=1; r_m < \mu_m}^N (r_{it} - \mu_i)(r_{mt} - \mu_m)^2}{\frac{1}{N-1} \sum_{t=1; r_m < \mu_m}^N (r_{mt} - \mu_m)^3} \quad (2)$$

In this case, the numerator in (2) can be referred to as the co-semi-skewness of the stock i 's excess returns and the market's excess return in the downside framework.

To interpret and grasp the analysis results properly, a few words should be added to distinguish two different measures of risk: systematic co-skewness and systematic downside co-skewness, which is the subject of this paper. Co-skewness was first introduced by Kraus and Litzenberger (1976) with a formula

$$co - skew = \frac{\frac{1}{N-1} \sum_{t=1}^N (r_{it} - \mu_i)(r_{mt} - \mu_m)^2}{\frac{1}{N-1} \sum_{t=1}^N (r_{mt} - \mu_m)^3} \quad (3)$$

Since the co-skewness captures both positive and negative deviations of market portfolio returns from its mean return it can be defined as a symmetric measure of risk (Galagedera and Brooks, 2007, 218). Kraus and Litzenberger (1976) implied that the returns of individual assets have a positive or negative co-skewness that depends on the asymmetry of the market portfolio. The assumption is that the investors prefer positive asymmetry in their portfolios. Friend and Westerfield (1980) and Harvey and Siddique (2000) had similar conclusions and defined co-skewness as a measure of marginal contribution to the asymmetry of the total market portfolio. Since the positive asymmetry is preferred in the portfolio, adding stock with a negative co-skewness makes that portfolio more negatively asymmetric (decreasing asymmetry). Therefore,

such stocks should have a higher expected return (risk premium is required). The measure that is subject in this paper, the downside co-skewness, accommodates only market portfolio returns below mean returns for the measurement of risk.

Further on, we can elaborate the difference between the downside beta and downside co-skewness as follows. The numerator in (1) and (2) is the sum of excess asset return, but in (1) it is weighted by excess market return in the downside, while in (2) it is weighted by squared excess market return in the downside. Since we are only interested in excess market return in the downside, by squaring them there is no loss of information. When excess market returns are non-positive (downside beta) this will not be the case for the downside co-skewness since returns are squared and all are non-negative. In such a case, in the downside beta, the numerator increases when the excess asset return is negative and vice versa. For the downside co-skewness opposite is valid. Besides the difference in the sign of the numerator, an additional difference between the two measures is in the contribution of excess market returns in the downside. The squared excess market returns capture the movement of the market returns better than excess market returns, resulting in a higher potential of downside co-skewness to capture the risk in the downside compared to the downside beta (Galagedera and Brooks, 2007, 218).

In this research, both in-sample and out-of-sample analyses are performed. First, in-sample analysis is performed, following the work of Ang et al. (2006). The main goal of the in-sample analysis is to determine the relationship between the realized return and realized risk measures in the downside. The first method to test this is a time-series analysis of risk premiums related to two different downside risk measures. Individual stocks are sorted into equally-weighted quartiles based on observed risk measures – downside beta and downside co-skewness. Downside risk measures are calculated based on returns of the 36-months rolling window (moving for one month each time) of returns for stocks that had at least 20 months of trading. For the same 36-months periods, the average return is calculated for each quartile. Since the same period is in the subject, in-sample analysis is evident. For the observed period from January 2005 to April 2019, the time-series of monthly returns for quartiles is obtained. Risk premiums are calculated as the difference between the average return of the fourth and first quartile for each downside risk measure separately. The sign of the risk premiums and their statistical significance is indicated for interpretation purposes.

Further on, to evaluate the relative importance of two risk measures in the downside, their power to explain stock returns in the cross-section is calculated. The usually implied method is Fama and MacBeth (1973) two-pass regression. However, in this paper panel data regression analysis is performed due to some advantages compared to Fama and MacBeth regression. Hsiao (2007) states that there are at least three reasons why the use of panel data analysis is becoming dominant: 1) data availability, 2) greater ability to model data compared to cross-sectional or time-series regression, and 3) challenging methodology. Also, Hsiao (2007, 3-5) listed the following advantages of panel data analysis compared to regression on cross-sectional data and regression of time series: 1) accurate estimates of model parameters, 2) greater possibility of capturing the complexity of data compared to individual cross-sectional or time series analyses (In that way, construction and testing of much more complex hypotheses are possible, as well as controlling for the impact of the omitted variables and creating more precise predictions by pooling data instead of predicting individual outcomes using data on each unit separately.), and 3) simplifying calculations and making statistical conclusions. In line with that, and to utilize the simultaneous presence of the unit (stock return) and time dimension, this paper performs a panel data analysis of realized returns on realized downside risk measures computed over the same period. The dependent variable is the realized monthly return (r_{it}) and the independent

variable is the calculated downside risk measure: downside beta (β_{it}^-) (4) and downside co-skewness (ψ_{it}^-) (5). By applying appropriate tests, the suitability of different models is tested. In this paper, the time random-effects model and pooled OLS (*ordinary least squares*) are used:

$$r_{it} = \alpha + \gamma\beta_{it}^- + u_t + \varepsilon_{it} \quad (4)$$

$$r_{it} = \alpha + \gamma\psi_{it}^- + u_t + \varepsilon_{it} \quad (5)$$

To link the expected return estimation to downside risk measures estimation, the out-of-sample analysis is performed. Martellini (2008) demonstrated that the observed total volatility of a stock can be used as a proxy for the stock's expected return. Therefore, in this paper, two different risk measures in the downside are tested as proxies for the expected return estimation. Again, a time-series analysis of risk premium related to different downside risk measures (like Martellini (2008)) and panel data analysis of stock returns on estimated downside risk measures over time is performed. The dependent variable is the out-of-sample realized monthly return and the independent variable is the estimated downside risk measure. Downside risk measures are calculated based on returns of the previous 36 months. Such portfolios are held for one month and out-of-sample monthly return is estimated for each quartile. Based on rolling window estimation, out-of-sample time-series of monthly returns for quartiles are obtained¹ for the period from January 2008 to April 2019.

4. Empirical results

Following the methodology described in the previous section, the downside beta and downside co-skewness quartiles and average monthly returns on an annual basis together with risk premiums (discounts) are presented in Table 1². The risk premiums are calculated as a difference between the average annualized return of the fourth quartile (25% of the stock with the highest risk) and the first quartile (25% of the stock with the lowest risk).

Table 1: Annualized performance of quartiles and risk premiums (in-sample)

Quartile	Stocks sorted by β^-	Stocks sorted by ψ^-
	Return ³	Return
1	-12.57%	-8.10%
2	-7.27%	-10.30%
3	-9.67%	-8.93%
4	-10.73%	-12.98%
4 – 1 quartile	1.84%	-4.88%

Source: Authors

As can be seen from Table 1, all returns are negative for both risk measures – downside beta and downside co-skewness. This is not a surprise since the analysis began in January 2005, and

¹ January 2008 is the first month for which the return is estimated (out-of-sample). Downside risk measures are calculated for the 36-months period from January 2005 to December 2007. As in the in-sample analysis, the condition is that the stock had at least 20 months of trading (over a 36-months period).

² Results for downside beta are from the analysis performed in the doctoral thesis of the author Zrinka Lovretin Golubić. Doctoral thesis was supervised by Denis Dolinar, PhD and defended at the Faculty of Economics, University of Zagreb in May 2022.

³ Returns are calculated as the arithmetic mean for each quartile and annualized as a geometric average.

the first 36-months period includes 2007 when the effects of the global financial crisis began to spill over into the Croatian capital market. Even though the results show that stocks with high contemporaneous downside beta have higher average returns, the risk premium is not statistically significant. The results for the downside co-skewness are not in line with the expectations since the risk premium does not exist.

Table 2: Risk premiums obtained by in-sample panel regression analysis: time random-effects model

Risk measure	α	robust s.e.	t-stat	p-value	γ	robust s.e.	t-stat	p-value
β^-	-0.7483	0.1316	-5.69	0.000***	-0.1606	0.0471	-3.41	0.001***
ψ^-	-0.8832	0.1311	-6.74	0.000***	0.0001	0.0000	8.71	0.000***

Significance indicators: *** 1%, ** 5%, * 10% valid throughout the whole paper. Coefficients and standard errors are ($\times 10^2$).

Source: Authors

Results of panel data analysis of realized returns on realized downside risk measures computed over the same period are presented in Table 2. As opposed to the time-series analysis of the risk premium presented in Table 1, the risk premium is statistically significant for both risk measures; however, the sign of the coefficient is as expected only for the downside co-skewness. In that respect, downside co-skewness is a more appropriate measure of downside risk as it reflects the expected relationship between the risk measure and the return.

Next, the results of out-of-sample analysis of two different risk measures, downside beta and downside co-skewness, as proxies for the expected return estimation are shown in Table 3 and interpreted.

Table 3: Annualized performance of quartiles and expected risk premiums (out-of-sample)

Quartile	Stocks sorted by β^-	Stocks sorted by ψ^-
	Return	Return
1	-10.57%	-8.44%
2	-5.87%	-10.76%
3	-3.71%	-9.33%
4	-10.57%	-13.66%
4 – 1 quartile	0.00%	-5.23%

Source: Authors

Out-of-sample estimation did not yield significant results for the analyzed data. The expected monotonic increase of an annual return is not present and risk premium does not exist, nor for the downside beta nor the downside co-skewness.

Table 4: Risk premiums obtained by out-of-sample panel regression analysis: time random-effects model and pooled OLS

Risk measure	α_i	robust s.e.	t-stat	p-value	γ	robust s.e.	t-stat	p-value
Pooled OLS								
β^-	-0.5113	0.1954	-2.62	0.009***	-0.1648	0.1199	-1.37	0.169
Time random effects								
ψ^-	-0.6539	0.5843	-1.12	0.263	0.0008	0.0000	19.83	0.000***

Coefficients and standard errors are ($\times 10^2$).

Source: Authors

The same as for the in-sample analysis, panel data analysis dominates over time-series analysis as presented in Table 4. Generally, it is quite challenging to obtain significant results for the out-of-sample analysis. Out-of-sample estimation is extremely sensitive to parameters used as inputs and can involve large estimation errors. Taking into account unreliable data from the Croatian stock market, this becomes an even larger obstacle. The estimated risk premium is statistically significant only for the downside co-skewness. Following the paper of Galagedera and Brooks (2007), we find evidence to suggest that downside co-skewness could be a more appropriate explanatory variable of asset price variation than downside beta and can be used as a proxy for the expected return on the Croatian stock market. This finding implies two important consequences for investors and market regulators in less developed capital markets. First, common simplification among practitioners that stock returns are normally distributed should be avoided because it will definitely cause suboptimal results (portfolios) in the process of the mean-variance optimisation. Second, since downside co-skewness is one of the indicators of downside risk, the behavioural approach becomes more prominent in explaining overall market movements and reconsiders the position of the traditional finance theory.

5. Conclusion

Markowitz's modern portfolio theory assumes that all investors are rational in their behaviour and that market prices reflect all available information. Nowadays behavioural finance is becoming more prominent by highlighting that investors' real-life behaviour is often affected by biases. Thus, emotions, such as fear or greed, and cognitive abilities consequently emphasise investors' loss aversion as opposed to risk aversion. In order to better examine the loss aversion bias among investors in the less developed capital market, in this paper, besides the downside beta, the standard measure of the downside risk, a new measure is tested: the downside co-skewness. More specifically, we examined whether the downside co-skewness should be used as a proxy for the stocks' expected return on the Croatian stock market. In order to do that time-series analysis of the risk premium and panel data regression analysis were performed both in-sample and out-of-sample.

A few comments related to opposite results for two different methods applied (time-series analysis and panel data analysis) should be added. Generally, research can be divided into analyses where individual stocks are taken into account when testing or where portfolios are created into which stocks are sorted. One of the reasons why one should use portfolios (in which stocks are sorted), rather than individual stocks, is related to the possibility of reducing errors-in-variables, specifically in the estimated betas that are used as independent variables in the regression (Blume, 1970). Since betas are independent variables in the regression on cross-sectional data (they are on the right side of the regression equation), more precise estimates of factor sensitivities for portfolios will result in more precise estimates of risk premiums. However, Ang et al. (2020) provide arguments for why individual stocks should be used for testing, and not portfolios in which they are sorted. They show that portfolio creation significantly reduces the standard errors of factor sensitivities due to the reduction of specific risk. However, such reduction does not lead to smaller errors in the estimation of factor risk premiums, because grouping stocks into portfolios destroys information. Sorting stocks into portfolios reduces the cross-sectional beta dispersion and reduces the efficiency of the portfolio's estimated factor sensitivities. Consequently, estimates of risk factor premiums are less efficient when portfolios are formed. Even though sorting stocks into portfolios is more prevalent in empirical research today, in this paper more emphasis should be given to panel data analysis since more robust results are obtained.

The results of the performed analysis confirm the dominance of the panel data analysis over the time-series analysis of the risk premium. In-sample panel data analysis yielded statistically significant risk premium for both downside risk measures, however, only the downside co-skewness reflects the expected relationship between the risk measure and the return. For the out-of-sample analysis, the estimated risk premium is statistically significant only for the downside co-skewness. Therefore, we find evidence to suggest that the downside co-skewness could be used as a proxy for the expected return on the Croatian stock market being a more appropriate explanatory variable of asset price variation in comparison to the downside beta.

Overall, the findings of this research open the need for additional research when discussing higher-order co-moment in a downside framework. Namely, the fact that downside beta did not produce any positive risk premiums raises the question of whether the initial assumption regarding loss aversion is valid. Also, downside co-skewness, as a measure of downside risk, is much more complex than downside beta and it might be questionable to assume that common investors in real life can take easily into account all its properties when trading on the market. Finally, we are aware of the limitations of our data sample. In order to fully confirm our findings more robust analysis is needed. Further research should cover a greater number of countries with a similar level of capital market development. Also, the overall observation period should be fragmented with respect to market trends, i.e. observation subperiods should reflect regime switching.

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REGIONAL CHALLENGES OF ADULT FOSTER CARE FROM THE PERSPECTIVE OF FOSTER CARERS

ABSTRACT

Adult foster care is one of the social services intended mainly for older people who cannot care for themselves, who are infirm and/or have some form of disability. Research conducted on adult foster care is insufficient and lacking, as is the topic of adult foster care in general. This paper presents the results of a qualitative research whose goal was to examine the experience and satisfaction of foster carers for adults with the current state of foster care as a form of care and to determine their recommendations for providing better adult foster care services. The research includes foster carers in the area of Osijek and Beli Manastir. The results indicate numerous difficulties within foster care, including a lack of cooperation with employees of the social welfare system and the health system, the absence of active involvement of foster carers for adults in the process of individual planning, lack of support from employees of social welfare centres and insufficient compensation for foster carers. The paper begins with introductory theoretical explanations of the foster care service. Furthermore, the relevant legal framework and the difficulties of its application in practice are discussed. The central part of the paper is the presentation of the results of qualitative research among foster carers and an analysis of their views on the state of foster care in regional frameworks. In conclusion, there are recommendations for improving the adult foster care system and initiation for further research in this area.

Key words: *foster care, foster carer for adults, social care, legislation, recommendations.*

1. Introduction

Contemporary Croatian society is faced with a constant increase in the number of older people (Nejašmić and Toskić 2013, 91; Puljiz 2016, 83), many of whom cannot care for themselves independently. The Constitution of the Republic of Croatia (Official Gazette 56/90, 135/97, 08/98, 113/00, 124/00, 28/01, 41/01, 55/01, 76/10, 85/10, 05/14) in Article 64 places the care of older and infirm parents on their children. The Family Act (Official Gazette 103/15, 98/19) bases its provisions on, among others, the principle of solidarity, mutual respect and assistance among all family members (Article 4), as well as the principle of guardianship of persons who are unable to care for themselves and their rights and interests (Article 8). But the fact is that the number of older people who cannot care for themselves and do not have close family members who can provide daily care is growing, thus increasing the need for accommodation services, i.e. foster care.

This paper will discuss foster care for the older from the perspective of foster carers. First, the institution of foster care will be explained in more detail, the legal framework that regulates it will be presented, and its basic features will be analysed. Then, the results of qualitative research conducted as semi-structured interviews with ten foster carers in the city of Osijek and Beli Manastir will be presented and analysed to examine their experiences in performing foster care tasks, the difficulties they face, and their recommendations for positive changes. In conclusion, considering the (dis)harmony between legislation and practice, proposals for the creation of mechanisms that will ensure more effective application of legal frameworks in this area will be provided, as well as an instruction to carry out further research on the experiences of foster carers, at the regional and national level.

2. Foster care – term and legal characteristics

Adult foster care is one of the social services intended for older people who cannot care for themselves, who are infirm and/or have some form of disability. Since foster care is a non-institutional form of care, it realises its potential in the process of deinstitutionalisation (Štambuk and Penava Šimac, 2021, 128, according to Šučur, 2003).

The Social Welfare Act (Official Gazette 46/22) (hereinafter: SWA) defines foster care as "a form of provision of social services whereby a child or an adult is provided accommodation in a foster family" (Article 236, Paragraph 1). Foster Care Act (Official Gazette 18/22) (hereinafter: FCA) is the basic act regulating foster care in the Republic of Croatia. According to this Act, the purpose of foster care is "to provide care and support to the beneficiary in a stimulating and positive family environment in accordance with his/her change plan" (FCA, Article 2). Foster care is carried out in accordance with the principles of social welfare: the principle of the best interest of the beneficiary, equality in the family environment, sustainability of social ties, involvement of the beneficiary and the principle of non-discrimination (FCA, Article 3).

There are several types of foster care, and adult foster care can be performed as traditional foster care, kinship foster care and standard foster care (FCA, Article 10). Traditional foster care is a type of foster care in which accommodation is provided to the same type of beneficiary. The foster carer receives a living costs allowance and allowance for the foster carer's work (Ministry of Labour, Pension System, Family and Social Policy, no date). Kinship foster care is a type of foster care in which accommodation is provided to beneficiaries who are related to the foster carer or a member of the foster carer family in any way, and they do not have the right to a living costs allowance (Ministry of Labour, Pension System, Family and Social Policy, no date). Finally, standard foster care is a type of foster care in which the foster carer provides accommodation for four adults at the same time (Ministry of Labour, Pension System, Family and Social Policy, no date). In order to become standard foster carers, they must first have experience providing accommodation as a traditional foster carer for at least half a year and must not be employed (Ministry of Labour, Pension System, Family and Social Policy, no date). The advantages of engaging in this type of foster care are the benefits that foster carers have, namely the right to a living costs allowance, allowance for the foster carer work, pension and health insurance rights and unemployment rights when unemployed (Ministry of Labour, Pension System, Family and Social Policy, no date).

Knezić and Opačić (2021, 21) state that foster care for the older is one of the insufficiently available services for the older. It is estimated that where the foster care service is provided, it

is not enough to meet the needs of the user (Knezić and Opačić, 2021, 21). Table 1 shows that almost 10% of the foster families are in the Osijek-Baranja County. However, for a valid assessment of whether this is a sufficient number considering actual needs, it is necessary to make deeper analyses.

Table 1: Number of foster families for adults as of 10 March 2023

County	Traditional	Kinship	Specialised (according to the FCA, OG 90/11, 78/12)	Standard	Total
Bjelovar-Bilogora	85	7	2	21	115
Brod-Posavina	65	13	1	17	96
Dubrovnik-Neretva	0	0	0	0	0
City of Zagreb	26	5	1	2	34
Istria	1	2	0	0	3
Karlovac	53	2	0	26	81
Koprivnica-Križevci	110	7	0	16	133
Krapina-Zagorje	34	3	0	3	40
Lika-Senj	5	0	0	0	5
Međimurje	16	3	0	4	23
Osijek-Baranja	87	9	1	14	111
Požega-Slavonia	11	1	0	2	14
Primorje-Gorski Kotar	3	1	0	1	5
Sisak-Moslavina	69	2	3	17	91
Split-Dalmatia	4	5	0	1	10
Šibenik-Knin	1	0	0	1	2
Varaždin	51	3	1	2	57
Virovitica-Podravina	54	2	0	2	58
Vukovar-Srijem	33	11	0	3	47
Zadar	7	5	1	1	14
Zagreb	205	11	0	42	258
Republic of Croatia	920	92	10	175	1197

Source: Ministry of Labour, Pension System, Family and Social Policy – data provided to the authors upon request

A foster carer is a person who represents a foster family or provides accommodation services independently and in whose name a license to perform foster care is issued and entered in the Register of Foster Carers (FCA, Article 9, Paragraph 2). The Ordinance on the content and manner of keeping the Register of Foster Carers and the Register of Placed Beneficiaries and the content of the reporting form (Official Gazette, 63/2019, Article 1) regulates the manner and content of keeping these registers. The Ordinance on the manner and procedure of family assessment for foster care (Official Gazette, 46/2019, Article 1) regulates the method and procedure of assessment of the person who submits the application and their family members to determine whether the conditions for providing foster care are met. A foster carer can be a person who is at least 18 years old and has legal capacity but is younger than 60 years old (unless he/she is already involved in foster care or is doing it as a next of kin), has Croatian

citizenship, lives in the Republic of Croatia and has a registered residence there, has completed at least secondary education (unless foster care is concerned), has completed training for a foster carer (unless kinship foster care is concerned), meets the prescribed housing conditions and has the written consent of all adult members of the household to provide foster care (FCA, Article 14). When all the conditions mentioned above are met, the social welfare centre to which the foster carer belongs assesses the family, the motives for engaging in foster care (of the foster carer and their family members), what the relationships are like within the family and the impact on the acceptance of the beneficiary into the family, the risks and capacities of the family, psychological testing of the person submitting the application is carried out, and other facts that could affect the provision of foster care services are also assessed, taking into account the recommendations of other service providers and other bodies within the community (FCA, Article 14, Paragraph 3). When the assessment is made, and all the conditions mentioned above are met, the social welfare centre will conduct a training (FCA Article 14, Paragraph 4) in accordance with the Ordinance on the method and duration of education and additional training of foster carers (Official Gazette 63/2019).

Foster care is financed from the state budget. A maintenance allowance is a form of financial compensation that covers the living costs of the beneficiary. Allowance for the work of the foster carer is a form of monetary compensation for the foster carer to reward their effort and care provided for the beneficiary (Ministry of Labour, Pension System, Family and Social Policy, no date). Social workers are recommended to grant foster carers one-time financial assistance to cover certain needs of beneficiaries for which the maintenance allowance and allowance of foster carer's work are insufficient (Laklija and Barišec, 2014, 59, according to Družić Ljubotina et al., 2005).

The support of social workers to beneficiaries and foster carers is vital, especially at the beginning, when placing beneficiaries in a foster family, but also in other stages of placement (Laklija and Barišec, 2014, 57, according to Maclay Bunce and Purves, 2006). Before placing a beneficiary, the centre is obliged, among other things, to inform the foster carer about the characteristics of the beneficiary and other basic information about the beneficiary's way of life so far, as well as the goals to be achieved using the individual plan (FCA, Article 43, Paragraph 1, Subparagraph 1). Furthermore, the centre is obliged to prepare the beneficiary and his/her family for accommodation, as well as the foster family and, when choosing a foster carer, be guided by the needs of the beneficiary (FCA, Article 43, Paragraph 1, Subparagraph 2.3). During the placement, the beneficiary's centre offers professional help and support to beneficiaries, foster carers and family members, monitors the implementation of the individual plan, visits and monitors the beneficiary, and, if necessary, prepares the beneficiary for removal from the foster family (FCA, Article 44, Paragraphs 1-4).

The foster carer has the right, among other things, to privacy, to be aware of the actual condition of the beneficiary, to participate in the creation of an individual plan of change for all beneficiaries, to professional help and support, training and education organised by the centre and access to other forms of support for the beneficiary in accommodation (FCA, Article 49). The foster carer and the foster family provide the beneficiary with reception, housing, food, clothing, footwear, maintenance of personal hygiene, care and health care, custody, upbringing, support in education, organisation of free time, transportation and other services depending on the beneficiary's needs (FCA, Article 50, Paragraph 1). The Ordinance on housing conditions for foster care (Official Gazette 46/2019) in Article 11 stipulates that a maximum of two people can be placed in one bedroom. Exceptionally if it is a crisis accommodation, there can be three people, and the bedrooms must be equipped in such a way that they have a bed, a nightstand,

and a wardrobe for each beneficiary, a small table and chairs, and the arrangement must not impede the beneficiary's movement. Bedrooms for immobile beneficiaries must be equipped with beds suited to the beneficiary's needs and tables for serving meals in bed.

The foster carer for adults should ensure that all the needs of beneficiaries are met, encourage work and occupational activities, integrate the beneficiary into the community, and encourage the beneficiary to meet and socialise. All this should be done in accordance with the abilities, interests and needs of the beneficiaries (FCA, Article 52, Paragraph 1). Adult beneficiaries should receive the necessary information, actively participate in decision-making that concerns them, have the right to services and support programmes in the community, to safety and protection from any form of violence, abuse and exploitation, to privacy, to maintaining contact with all persons important to them, to complaints to the centre and daily care by foster carers and family members (FCA, Article 54 Paragraph 1). The adult beneficiary is obliged to participate in the achievement of the selected goals actively, follow the prepared individual plan, respect the rules of family life of the foster family, communicate with the foster family to overcome specific difficulties and reach an agreement (FCA, Article 55).

3. Adult foster care from the perspective of foster carers – analysis of research results

3.1. Presentation of previous research on adult foster care

Research on adult foster care in the Republic of Croatia is currently lacking. One of the rare studies on foster care was conducted in Baranja, examining the differences between foster carers for children and foster carers for adults (Savanović, 2010, 223). The research has recorded differences concerning socio-demographic characteristics, personal experience of foster care, interest in providing foster care to beneficiaries with specific characteristics, current information and education about foster care, level of social support, satisfaction with life in the community and oneself as a foster carer, difficulties they encounter as foster carers and the needs of foster carers (Savanović, 2010, 223). 60 foster carers for children and 21 foster carers for adults participated in the research by Savanović (2010, 223), indicating a more significant prevalence and interest in foster care for children. Two research problems had been set to define the differences between foster carers for children and adults concerning the previously mentioned categories and the connection between satisfaction with life in the community, the difficulties they face as foster carers and satisfaction with themselves as foster carers (Savanović, 2010, 226). The research has shown that foster carers for children have a higher level of education than foster carers for adults and are more dissatisfied with themselves as foster carers than foster carers for adults (Štambuk and Penava Šimac, 2021, 141, according to Savanović, 2010). Furthermore, research has shown that foster carers for adults face more significant difficulties providing foster care services than foster carers for children (Štambuk and Penava Šimac, 2021, 141, according to Savanović, 2010). One of the limitations of that research is that foster care, in general, is underrepresented and lacking, and this especially applies to adult foster care, which is less represented. Savanović recommended having more focus on adult foster care in order to improve the care for adults (2010, 224).

The research that dealt with the experience of foster care of adults with mental disorders from the perspective of the foster carers is that of Laklija and Barišec (2014). Eight participants from the region of the Social Welfare Centre of Zagreb County took part in this research and they singled out altruism, the experience of foster care in the community, care for a family member, socio-economic life circumstances and own abilities as factors motivating them to start providing foster care (Laklija and Barišec, 2014, 50). The difficulties they pointed out included

cooperation with experts, negative attitudes of other community members, the feeling of being underpaid, the experience of a beneficiary's death, the process of adapting to life with beneficiaries and communication with them (Laklija and Barišec, 2014, 50). The advantages they listed included family help and support, personal characteristics, having a family farm, good cooperation with experts, a positive attitude of the community and communication (Laklija and Barišec, 2014, 50). The areas that needed improvement included allowances, professionalisation of foster care, legislative framework, education and filling of available capacities for housing beneficiaries faster (Laklija and Barišec, 2014, 50).

3.2. Objectives, research methodology and data processing

The research sought to determine how adult foster care is perceived and experienced by people who provide foster care services. Three research objectives were set:

1. gaining insight into the personal experiences of foster carers with providing adult foster care services;
2. gaining insight into the level of foster carer satisfaction with the current state of adult foster care;
3. collecting foster carers' recommendations for achieving the higher quality provision of adult foster care services.

The semi-structured interview method was used in the process of qualitative research. A list of 16 questions grouped in two sets was made for this research. The first set of questions (6) refers to the socio-demographic data of foster carers. The second set of questions (10) refers to their experience with foster care.

In addition to the semi-structured interview method, the observation method was also used during the stay in the foster carers' households. The observation method is a research method of collecting data by observing a particular phenomenon. It can be observed in different ways by looking, listening, reading, touching and recording the behaviour and characteristics of the observed phenomenon (Dudovskiy, no date). During the interview with the foster carers, the observation was done by watching and recording their characteristics, behaviour and the space where they live following a note-taking protocol designed for this research. Since observations were made according to predetermined variables, it is considered to be a structured observation method (Dudovskiy, no date). As previously stated, the foster carers were observed during the interviews in their family homes. They did not know that they were being observed so that they would behave in a relaxed, natural way and feel comfortable in their own home.

In order to achieve the research objectives, the data collected through field semi-structured interviews were processed using thematic analysis. The analysed answers are divided into three larger units that indicate three research problems: 1) experience, 2) satisfaction, and 3) recommendations, and were obtained by analysing the participants' answers to the questions asked according to the template designed for this research.

3.3. Participants

10 female foster carers from the region of the Social Welfare Centres Osijek and Beli Manastir participated in the research. The intention was to also include male foster carers in the research. However, when the centres were contacted with a request to get in touch with the foster carers in order to check whether they were willing to participate in the research, there was not a single foster carer on the list of the Social Welfare Centre Osijek. On the list of Social Welfare Centre

Beli Manastir, there were more female foster carers but only one male foster carer. Therefore, foster care teams of the two social welfare centres selected the participants. The female foster carers were between the ages of 39 and 68 (the average age was 57) and had been providing foster care for 4 to 15 years. Five foster carers have four beneficiaries, three have five beneficiaries each, one has two beneficiaries, and one has only one beneficiary. The foster carers stated that their husbands, children and daughter-in-law help them in providing care for the older, or they independently care for the beneficiaries. Some of the foster carers also stated that they occasionally pay for additional help at their own expense.

Table 2: Socio-demographic characteristics of research participants

<i>Gender of the participant</i>				
Gender	N (%)			
Male	0 (0.00)			
Female	10 (100.00)			
Total	10 (100.00)			
<i>Age of the participant</i>				
Min	39			
Max	68			
M	57.3			
<i>Occupation of the participant</i>				
Occupation	Status (N = 10)			
	Pension	Employed	Unemployed	Total
Senior nurse	+	/	/	1
Unskilled worker	/	/	+	1
Hairdresser	/	+	/	1
Pharmacy technician	/	/	+	1
Health laboratory technician	+	/	/	1
Operator	/	/	+	1
Specialisation in agriculture	/	+	/	1
Theologist	+	/	/	1
Caregiver	+	/	/	1
Salesperson	/	/	+	1
<i>Employment of the participant</i>				
Full-time employment	N (%)			
Yes	2 (20.00)			
Pension	4 (40.00)			
Unemployed	4 (40.00)			
Total	10 (100.00)			
<i>Duration of foster carer work (N = 10)</i>				
Min	4			
Max	15			
M	9.9			

Source: Authors

3.4. Presentation of research results and discussions

3.4.1. Semi-structured interview

The first group of questions examined the personal experience of adult foster care. The questions related to the first research problem can be viewed through the lens of social

constructivism. The theory of social constructivism is based on personal experience, and it is determined independently according to the problem and other stakeholders of the process (Knežević et al., 2013, 272). There is space left for dialogue, listening to other people's views on the current situation and problems, and beneficiaries are encouraged to tell their side of the story (Ajduković, 2008, 401). The foster carers presented their personal experience and talked about their difficulties and problems and how they look at problems in foster care. They were asked to state what they considered to be the *good* and *bad* sides of foster care and the main *difficulties* they faced in providing foster care services.

As the *good sides* of foster care, the foster carers essentially highlighted the individualised approach to the person in foster care within the family system, the support of social workers to the beneficiaries and the feeling of connection between the foster family and the beneficiary. Several foster carers pointed out that they liked working in their own home, organising their own time and work, and that the beneficiaries became part of their family and fitted in well. Most foster carers stated that the good side of providing foster care was that the beneficiaries found protection and their place within the family, had a sense of belonging to someone and felt they were still important. Foster carers defined foster care as humanitarian work and as their willingness to help those in need. It can be concluded that foster carers are intrinsically motivated to help people with specific difficulties and that their behaviour is prosocial. Prosocial behaviour is a broad term for various forms of social behaviour, the goal of which is to help others overcome their difficulties or satisfy their needs (Vidović, 2017, 1). When describing the good sides of foster care, it is noticeable that all foster carers approached their beneficiaries with empathy, which is connected with prosocial behaviour, and the desire to help them, and it can also be concluded that they are altruistic, that is, they do not ask for anything in return for their work (Vidović, 2017, 1). Since the foster carers have acquired different skills and knowledge during the many years of providing foster care, they also emphasised that they are better prepared for new beneficiaries. They stated that they are now much more prepared to overcome the challenges of foster care than they were at the beginning. Competence is a learning process where what has been learned is conceptualised and used in future activities and situations, and the level of competence is measured in such a way that a person is competent as much as he/she successfully copes with new tasks using what he/she has learned (Gomez Palacios, 2012, 260). Laklija and Barišec (2014, 58, according to Laklija, 2009) point out that the greater the feeling of success in providing service among foster carers, the less the feeling of investment and the greater the feeling of being rewarded. In the conversation about the good sides of foster care, the foster carers emphasised that they felt they perform their duty well and were proud of their previous experience and competencies.

The majority of foster carers pointed out that through providing foster care, they were given the opportunity to expand their social network. Considering the social network concept, adult foster care can be seen as a relationship between foster carers and beneficiaries where foster carers provide accommodation services to beneficiaries (Štambuk and Penava Šimac, 2021, 134). Formal and informal relationships form a social network where services, information and other goods are exchanged (Štambuk and Penava Šimac, 2021, 134, according to Dobrotić and Laklija, 2012). The foster carers stated that due to the expansion of their social network, they felt more comfortable and accepted in their community and were happy when they noticed that people remembered them as the people who had helped their parents.

Most foster carers stated that they had to take care of dying clients as the downsides and difficulties in performing foster care work, that clients were brought to their homes to die in a family atmosphere, which often caused stress, sadness and frustration in the foster family. They also agreed that foster care allowances were too small and that they could not provide sufficiently good care to the beneficiaries with these funds, so they often had to set aside their funds for this purpose. Many of them pointed out that the downside of foster care was that they

did not have annual leave or days off, and they did not have the right to be sick and take sick leave because foster care does not work that way. They also considered the fact that they do not have the opportunity to enjoy themselves with their family, go on vacation, go to the park with their children, go for a walk or take trips because there is no one to look after the beneficiaries, who need help and care during the entire day, as aggravating circumstances. They pointed out that with foster care, they lost their freedom, that it was difficult to establish a balance between private and work life because they take care of the beneficiaries alone, they did not have an additional employed person, and they always had to be ready to help, at any time of the day or night. Some pointed out that they often put the needs of the beneficiaries before those of their family and children.

They also considered the beneficiaries' character traits problematic. They stated that the beneficiaries were prone to frequent arguments and generally did not get along well. They pointed out that they were not sufficiently informed about the health and psychological state of the beneficiaries and their character by the employees of social welfare centres and that the generally poor communication with health workers and social welfare workers made it even more difficult for them to perform their work.

The second set of questions was related to the satisfaction of foster carers with the current state of adult foster care. This set included questions that examine cooperation with different institutions, how *involved foster carers are in creating individual change plans*, and whether they had the *support* of social workers.

The foster carers mostly pointed out the poor cooperation with the employees of the social welfare system, who visited them irregularly, did not have enough time and attention for foster carers and their problems, and did not provide the necessary support and help. Nevertheless, some of the foster carers pointed out that they had a cooperative relationship with some employees of the health system and the social welfare system. They noticed some of the social workers' efforts, emphasising their friendliness and willingness to help. However, they noticed that there were not enough social workers and that they did not have the time to dedicate themselves as much as they would like because they had too much other work. They pointed out that social workers did not ask their opinion or agreement when placing a beneficiary in their home. Furthermore, foster carers pointed out that relocating beneficiaries from the foster home was a problem as it takes a long time and tires them out.

There were divided opinions regarding cooperation with health professionals. Some foster carers were satisfied with doctors, nurses and other medical staff, while most of them pointed out a lack of cooperation. The foster carers who pointed out the lack of cooperation stated that the doctors discriminated against them, thought they were doing it only for the money, and did not understand that there was a need to be seen immediately for doctor's appointments because other beneficiaries were waiting for them at home. They stated that doctors often discriminated against beneficiaries because of their age, did not provide them with all medical care and told foster carers that it was not worth fighting for them. It goes without saying that such actions contradict the Anti-Discrimination Act's provisions (Official Gazette 112/12). *Ageism* or age discrimination is one of the subtypes of discrimination, and it refers to older persons (Tomečak et al., 2013, 42, according to Schaie and Willis, 2000) who are seen as senile, conservative, inefficient, selfish and all alike or equal (Tomečak et al., 2013, 45, according to Pečjak, 2001). For the care of older people to develop as well as possible, it is necessary to start looking at them as a resource, not as a burden on the community (Jedvaj et al., 2014, 142).

All the foster carers agreed they had very poor cooperation with the non-emergency medical transport staff. They stated that they did not understand how foster care works, that they do not have anyone employed except for the help of their family members, they are not ready to help

with the transport of the beneficiaries, and they judge the foster carers, they said that they were incompetent and questioned their choice of work.

Individual planning is "the process of devising ways in which support can be mobilised to help an individual or family to determine what they want and how to get it" (Ajduković and Urbanc, 2009, 506, according to O'Brien, 2009). An individual change plan is made in agreement with key persons related to the beneficiary and the beneficiary himself/herself, which means that the plan should also be made in agreement with foster carers. All foster carers agreed that social workers did not include them in the process of *individual change planning* for their beneficiaries, although they had every right to do so and should be assistants to social workers in providing care to the older.

Social workers should empower foster carers, but also beneficiaries, individually and in groups, with the help of their knowledge and skills (Thompson and Thompson, 2001, 65). When the foster carers were asked if they lacked the *support of social workers*, almost all of them answered in the affirmative. They pointed out that they needed more support from social workers, understanding and help. They stated that it would be much easier for them to perform foster care duties if someone would listen to them and hear their problem, if they felt that social workers were there for them, not only for beneficiaries. When the beneficiary and/or foster carer present their story, problem or difficulty they face, the social worker is a professional who should, together with them, perceive and understand the story, get immersed in it, and, based on that, develop a cooperative relationship (Ajduković, 2008, 401, according to Čačinović Vogrinčić et al., 2007). A cooperative relationship is a type of relationship in which social workers strive to be collaborators with their beneficiaries and help them in creating solutions to the beneficiary's problems (Čačinović Vogrinčić et al., 2007). The conversation is a crucial element for establishing a cooperative relationship because, through conversation between the social worker and the beneficiary, a solution to the problem is found, a relationship full of respect is created, and experience is gained (Čačinović Vogrinčić et al., 2007). When social workers provide an opportunity to talk with foster carers, the foundation for cooperation, help and support is laid. If foster carers do not have the support of experts, in this case, social workers, they may feel guilt, emotional exhaustion, self-doubt, depression and internal conflict (Laklija and Barišec, 2014, 58, according to Ajduković et al., 2007).

The last set of questions was related to **recommendations** and possible types of improvement. As recommendations, the foster carers mentioned more activities for beneficiaries, co-financing of aids for older and infirm beneficiaries, the financial compensation that is sufficient to meet the individual needs of beneficiaries, education that is adapted to the needs of the foster carers, cooperation with the ministry in charge of social welfare, and establishing a more cooperative relationship with Social Welfare Centre employees. The foster carers were the most emotional regarding this issue and showed they were at the limit of their abilities.

There is a great desire and need to organise foster carers into a large group or association where they can meet, socialise, exchange experiences and provide mutual support and understanding. The FCA determines the obligation to organise annual training and supervision of foster carers (Article 46). With the help of education, foster carers get the opportunity to make contact and connect with other foster carers, exchange experiences and familiarise themselves with legal obligations and changes (Laklija and Barišec, 2014, 59, according to Družić Ljubotina et al., 2005). It is necessary to align the education with the needs of the foster carers and to change the approach in the sense that the training not only fills the educational purpose, but also leaves room for socialising, exchanging experiences and providing support and help.

They said that they did not have time for their private lives, and as a solution to that problem, the need for additional help in the house was pointed out, enabling the foster carers to employ an additional person who would occasionally work and help care for beneficiaries. Also, it is

very important for foster carers to be asked for their opinion when making some decisions at the state level, as they want to be involved in developing plans, strategies and laws because all of the above directly relates to them and their foster care practice.

3.4.2. Observation method

The observation method was used during the interviews with foster carers. The foster carers were observed during the interviews in their family homes, and they did not know that they were being observed so that they would behave in a relaxed, natural way and feel comfortable in their own home. We observed their verbal and non-verbal communication, level of concentration and willingness to participate and noted the questions they answered more actively and those they had more difficulty answering.

All the foster carers were very engaged; they readily participated in the research and answered the questions. Most of them tried to portray the current situation with foster care and the difficulties they face as vividly as possible. They often made hand gestures and different facial expressions, depending on how intrigued they were by the question. A few took long pauses before answering the questions to recall an event or situation they wanted to present. However, the pauses also pointed to the caution of foster carers when answering the question about cooperation with institutions that should help them provide better quality adult foster care service. When one foster carer was asked about cooperation with the competent Social Welfare Centre, she started waving her hands, showing that she could not answer the question honestly and pointing to the voice recorder. In the end, she did answer the question, but one could see that she was very uncomfortable (her face turned red, and she spoke slowly), and you could hear caution in her voice.

Several foster carers even cried while talking about their past and present beneficiaries and their current situation as foster carers. Also, it could be noticed that, in the beginning, some foster carers were uncomfortable (arms close to the body, crossed on the chest, avoiding eye contact, answering briefly, without too many examples and descriptions), but the discomfort passed as the interview progressed. What needs to be emphasised is that all foster carers were very approachable and pleasant and showed great interest in research, which means they are highly motivated to change the situation in foster care for the better. They were interested in the purpose of the research, the participants, and what will be achieved, and they expressed hope for the success of this research to improve the current situation in adult foster care. When the foster carers were asked what could be helpful to provide a better foster care service, they hesitated to answer honestly and did not say who and what, specifically, could be helpful. A few foster carers would raise their voice and speed up their speech when asked questions about the difficulties, problems and downsides of adult foster care, indicating their agitation and frustration with the current situation. While discussing the absence of cooperation with non-emergency medical transportation service staff, the foster carers would cringe, frown and non-verbally signal their dissatisfaction. One foster carer was very depressed and had a sorrowful facial expression while explaining her situation with the beneficiary, who had independently requested another placement, indicating that she felt guilty and cared about this beneficiary. Also, one foster carer who talked about her very unpleasant experience with a beneficiary whose relocation she had been waiting two years for showed an extremely high level of anger (she waved her hands, sped up her speech, raised her voice and began to shift in her chair). She pointed out this example several times during the interview, and in the end, she said that this conversation was helpful for her to "vent" a little. One foster carer was quite upset during the entire interview (she broke into tears on several occasions, asked for confirmation and approval of the interviewer, her hands were shaking, she did not maintain eye contact, her voice cracked

and trembled, etc.), which indicated that she was already running out of strength and was significantly affected by her situation.

Most of the participants were pleasantly surprised that someone wanted to do research with adult foster carers.

4. Conclusion

Since we are faced with a severe population ageing trend, adult foster care is a service that needs to be urgently developed in our community. If we look at the legislative framework itself, we can say that we have created relatively good legal foundations for the development of foster care in Croatia. However, this development does not go in the direction the law envisaged. As Knežević pointed out, in social work, it is important to recognise the disharmony of the system and find resources that can change it (Knežević et al., 2013, 157, according to Pardeck, 1988). When we talk about foster care, there is an apparent discrepancy between the rights guaranteed to foster carers and the (in)ability to realise them in practice. Help and support from competent authorities, education, and reimbursement of expenses incurred for the performance of foster care activities are just some of the elements in which this discrepancy is visible. The results of the research carried out for this paper point to the fact that the most challenging thing for foster carers to deal with is the impossibility of realising their right to help and support from competent authorities, primarily social welfare institutions and health institutions. The lack of legally guaranteed help is undoubtedly reflected in the quality of foster care services and their daily lives. The feeling of satisfaction provided by caring for the older and infirm, in the absence of support from the system when needed, is replaced by disappointment, powerlessness, and even frustration. The question is, what resources can change that?

According to the authors, positive changes in the field of foster care will not happen until the voice of those on the "front line" is heard and respected, which of course, are the foster carers themselves. Therefore, the basic premise of positive changes is the more active involvement of foster carers in creating general and individual planning in this area. Likewise, positive developments cannot occur until mechanisms of close cooperation between foster carers and institutions are developed, which are obliged to provide them full assistance and support for the adequate performance of foster care activities. It is also necessary to present foster care in public to educate citizens and employees of institutions that provide help and support to foster carers about what it is and how it works. The media and dissemination of educational content can also favour a better understanding of the foster care process and activate citizens to participate more actively. Education for foster carers should be adapted to the needs of foster carers and leave room for the exchange of experiences, support and help. Furthermore, it is necessary to create mechanisms for more effective protection of foster carers' private and family life and to develop a more encouraging system of rewarding them. Finally, it is important to establish an association of foster carers for adults at the regional level to strengthen the connection between foster carers and to exchange experiences, good practices, mutual help and cooperation.

Taking into account how important it is to hear the voice of foster carers, to raise awareness of the difficulties they face in the performance of foster care duties daily, also taking into account the limitations of the research that was carried out for this paper (regarding the number of participants and the area covered), it is recommended to carry out further research in this area, both at regional and national levels.

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CORPORATE DIVIDEND POLICY OF COMPANIES LISTED ON ZAGREB STOCK EXCHANGE

ABSTRACT

By definition, the dividend policy is a policy implemented by the management, where the management makes a decision on the size of the dividend to be paid, often taking into account the dividend payment pattern that was implemented in previous years as well. There are a large number of developed theories that try to explain what are the key determinants that influence the shaping of the decision on dividends. All these theories contain their own indicators that try to explain the process and result of the dividend policy. The aim of this paper is to examine what affects the dividend policy of companies listed on the Zagreb Stock Exchange, not limiting itself to dividend theories and their specific variables, but exclusively to examine the influence of selected indicators on the corporate dividend policy of companies listed on the Zagreb Stock Exchange. Indicators whose impact is examined are segmented into two groups. One group is indicators related to the capital market and market indicators: the share of realized turnover of the share in the total share turnover of the Zagreb Stock Exchange, the market capitalization of the company, the share of the company's market capitalization in the market capitalization of the Zagreb Stock Exchange. The second group are profitability indicators, because dividends are paid out of realized profits, so the following indicators belong to this group: earnings per share, return on capital (ROE) and return on assets (ROA). The research uses a dynamic panel model in order to include the influence of previous decisions in the research, which is often important when implementing a policy dividend.

Key words: *Dividend, Dividend policy, Zagreb Stock Exchange, Market capitalization.*

1. Dividends and dividend determinants

By investing in stocks, an investor can earn income from two potential sources. These incomes are income from dividends and income realized on the basis of capital gains from the sale of shares. Dividends represent the distribution of corporate assets to shareholders based on the percentage share in ownership (Vidučić, 2006, 231). It can be said that every distribution of value that the company makes to its shareholders represents a dividend. The

most basic and oldest form of dividends is the cash dividend. Other and no less important are the dividend in shares and the buyback of shares.

Cash dividends represent the most significant way of distributing money to shareholders. For a number of years, they were the main way companies returned money to their shareholders. How important cash dividends are shown by the fact that dividends contributed to a third of the total return of shares, making them a significant source of the total return of investors. From December 1926 to December 2012, dividend income accounted for an average of 34% of the monthly total income from S&P 500 stocks (Miletić, 2014, 16).

If the company has excess cash and insufficiently profitable investment opportunities to justify the use of these funds, the distribution of these funds may be in the interest of the shareholders. Instead of paying dividends to its shareholders, the company can use the cash to buy back existing shares. Historically, dividends have been the dominant form of payment to shareholders. However, recent research indicates that there have been structural changes in the way companies pay out money to their shareholders. Fama and French (2001) state that there has been a large decline in the share of companies that pay cash dividends.

From the shareholder's point of view, a share buyback provides the option of selling part or all of the shares at a price that is usually higher than the market price. Even more important, the purchase of shares makes it possible to decide whether to receive a dividend or not. An option that the shareholder does not have when paying regular dividends.

Share buybacks in the US have seen significant growth since the mid-1980s, when the Securities and Exchange Commission (SEC) "legalized" share buybacks. Outside the USA, the buyback of shares has recently been allowed or is still an illegal way of paying monetary compensation to shareholders. However, even when it is allowed, share buyback is subject to a large number of restrictions. Restrictions appear in the form of prerequisites that must be met, such as the permission of shareholders in relation to an independent decision of the management or in the form of the size of the share buyback, where in a large number of countries (including the Republic of Croatia) a maximum of 10% of the issued shares can be bought back. Although the number of companies that buy back shares has grown significantly, companies that pay cash dividends have not significantly changed the share of cash dividends in realized earnings.

The increase in funds that companies spend on share buybacks certainly results in an increased number of stock options that managers receive for their work. When stock options became a large part of management compensation, many companies, especially in the technology sector, had to issue hundreds of millions of shares to give to managers who exercised those options. However, this would significantly erode the share count and reduce earnings per share. In order to reduce the consequences, companies must turn to buying and repurchasing millions of shares on the open market.

The history and development of dividend payments are linked to the development of corporations as a form of business. The policy of distributing earnings by paying dividends was an important characteristic of business that was considered when establishing joint ventures centuries ago, just as it is an important characteristic of modern corporations today. Economists and many scientists have often discussed dividends since the beginning of the second half of the 20th century. The reason for this is certainly the large sums of money that corporations pay out to their shareholders.

The importance of dividends in the real world cannot be denied. Dividends are usually one of the main motives of investors for buying shares of a joint-stock company, and all rational investors would prefer a high dividend payment at a given moment, when the remaining cash flow of dividends would be constant. Income from dividends in the USA in 2013 made up 5.44% of the total personal income of an individual, while, for example, income from interest made up 8.70% of the total income of an individual (Miletić, 2014, 15).

The dividend policy, as one of the company's basic policies, represents the payment policy implemented by the management, whereby it determines (determines) the size and pattern of cash payments over time. Theoretically, the definition of dividend policy (as one of the basic corporate policies) simultaneously implies a decision on the type, payment and amount of dividends, as well as a decision on the pattern of dividend movement over time, if dividends are paid.

According to Dimitrić (2001), making a decision on dividends is related to other important financial policies that management faces and must always be seen in the context of decisions related to company financing, investments, capital structure optimization and increasing the wealth of shareholders as company owners.

Companies can lead a residual dividend policy but also different forms of managed dividend policy, e.g. fixed dividend policy, fixed dividend payment rates, growing dividends, etc., and the choice in the broadest sense depends on (Dimitrić, 2012):

- investment opportunities, which, if highly profitable, should direct the net profit towards reinvestment, i.e. for capital and investment expenditures and
- assessing the strength of the information effect that is signalled to potential investors by a certain dividend policy, and which affects the movement of the company's value.

A compromise dividend policy, which is also a practical, rational instruction for financial management, would mean (Dimitrić, 2012):

- that investment projects with a positive net present value are not rejected in order to pay dividends,
- to avoid dividend reductions and
- to preserve the stability of the dividend policy, because owners always form certain expectations.

Misunderstandings often arise when the decision to pay dividends is made, especially when the management wants to reinvest a larger part of the profit, and the shareholders have doubts about the company's strategy and/or the profitability of the specific project in which that part of the profit should be invested. Large shareholders are often very vocal in their demands for the payment of dividends regardless of the achieved results, and they do not take care of the interests of other shareholders and the needs of the company's long-term development. An example of such behaviour could be seen in the example of the Swedish company Volvo, where large shareholders asked the management to take a bank loan in order to pay them the promised dividend that the management had promised them, but it was based on subsequent calculations that showed that the dividend could not be paid without serious intervention in the substance of the company, withdrew its proposal.

When talking about dividends, the inevitable question is what determines the size of the dividends paid. This is a much-discussed question, primarily because companies pay out large sums of money to their shareholders. One of the original works on the subject of dividend

policy, the work of Merton Miller and Franco Modigliani (1961), Various studies conducted on developed capital markets (e.g. Fama and French (2001), DeAngelo, DeAngelo, and Stulz (2006), Denis and Osobov (2008), Von Eije and Megginson (2008)) have shown the connection of dividends with the fundamental characteristics of companies. such as company size, profitability, growth potential and maturity (lifetime) of the company.

Fama and French (2001) in the paper in which they investigated dividend payments and in which they put forward a thesis about the possible disappearance (or significant reduction) of dividend payments showed that the share of companies that pay dividends decreased sharply in the 80s and 90s of the 20th century. They considered the large number of initial public offerings at the end of the 20th century as one of the possible reasons for the decline in the share of dividend-paying companies and identified three key determinants that influence the decision to pay dividends. Those three determinants are: profitability, investment opportunities and company size. They showed how the average profitability of companies decreased over time. The reason for the reduced average profitability was certainly the increased number of initial public offerings of companies after 1978. Those companies were characterized by unprofitability. Before 1978, over 90% of companies that went public for the first time had positive earnings before interest (EBIT), while approximately 50% of companies that participated in initial public offerings after 1978 had positive EBIT. Only 5.2% of companies that went public for the first time after 1978 decided to pay a dividend. Newly listed companies were small and had great investment opportunities, which are also characteristics of companies associated with little or no dividend payments. In conclusion,

Fama and French (2001) state that the probability of dividend payment is positively related to the size of the company and its profitability, while it is negatively related to the indicator of the relationship between the market and book value of the company, a variable used as an assessment of potential investment opportunities.

DeAngelo, DeAngelo, and Stulz (2006) extended the previously described Fama and French research to include the company's life cycle, that is, the company's life stages. As a measure of company maturity, they took the ratio of total retained earnings to total equity (RE/TE) as well as the ratio of total retained earnings to total assets (RE/TA). The high ratio of the above indicators shows that it is a company that is in a mature stage of life, characterized by a stable cash flow that the company has at its disposal. A high share of retained earnings gives the company security in further operations, and at the same time, in the absence of potential investment opportunities, it is the potential for paying dividends. The conclusions of their research are that there is a statistically significant positive relationship between the decision to pay a dividend and the RE/TE and RE/TA indicators. According to them, the RE/TE indicator has a more significant influence on the decision to pay dividends than the company's current profitability and potential investment opportunities.

The research by Bulan, Subramanian and Tanlu (2007) supports the research that connects the payment of dividends with the maturity of the company. They state that companies initiate dividend payments when they reach a mature life stage. Companies that initiate dividends had higher growth rates, are more profitable, have larger cash reserves and have fewer investment opportunities, unlike companies that did not introduce dividends.

In addition to the aforementioned basic fundamental characteristics (profitability, investment opportunities, maturity and size of the company), some other characteristics of the company that are not considered basic fundamental characteristics also have an impact on the payment

of dividends. For example, the form of financing as well as the method of rewarding management can have an impact on the payment of dividends.

In his work, Kalay (1982) showed that companies that borrow by issuing bonds have certain restrictions related to the payment of dividends, which are imposed by the lender. In this way, creditors try to protect their borrowed funds. When there is such a restriction, it is natural that it affects the company's dividend policy. Sometimes the management of the company is very happy to accept the restrictions imposed by the creditors, because then they do not have to justify the withholding of profits to their shareholders, then they just refer to the restriction. Statescu's (2006) research showed that the indebtedness of the company is negatively related to the payment of dividends. Companies that borrow by issuing bonds try to increase their retained earnings.

The relationship between stock options and dividend payments was investigated by Fenn and Liang (2001). They came to the conclusion that dividends are negatively correlated with stock options that managers receive as compensation for their work in the company. The negative relationship between dividends and stock options was especially intense in the last years of the 20th century when there was a sharp increase in share buybacks and when share buybacks became a widely accepted way of distributing cash to shareholders. The reason for the negative relationship between stock options that managers receive and dividend payouts is that dividends reduce the value of managerial options in such a way that dividends stabilize stock prices and, therefore, managers replace dividends with stock buybacks.

Today's capital markets operate under different economic conditions in terms of laws, regulations and customs. Consequently, dividend policy varies from country to country. For example, there is a difference between countries in the amounts of dividends that companies pay and the method of payment. In certain countries, companies usually pay dividends quarterly (USA, Canada), while in most European countries, dividends are paid annually or semi-annually, such as in Great Britain. However, even in countries where dividends are traditionally less important for companies and where they are paid in smaller amounts, financial markets are aware of the importance and consequences of dividend policy. So Lease et al. (2000, 132) provide examples of news related to dividends of listed companies in Japan, a market characterized by the payment of smaller amounts of dividends. They state that in the early 1990s, when the turnover on the stock exchange in Japan was declining, the stock exchange was looking for ways to attract investors. A publication published by the Foundation of the Japanese Security Association issued an article where the question of how to attract investors was raised. The first item emphasized was the importance of dividends.

One of the first works that included the analysis of dividend policy through various capital markets around the world was the work of La Porta et al. (2000). The authors concluded that the amounts of dividends paid are significantly higher in countries with better legal protection of minority shareholders, such as Anglo-Saxon countries, compared to countries with weaker protection of minority shareholders, civil law countries. The median dividend payout rate (dividend/earnings) of companies in Anglo-Saxon countries was 37.42% compared to 25.11% for companies in civil law countries.

A factor that can influence the payment of dividends is the sentiment and affection of investors in the market towards dividends. Thus, in conditions of market growth, such as in the early 90s of the 20th century in the USA, when many new companies went public, investors were primarily oriented towards stocks with potentially high growth rates and where

they expected to achieve high capital gains. In addition to such stocks, the majority of investors ignored stocks with stable ("average") price growth, which provide their investors with income primarily through dividends. In such situations, when the market is dominated by investors focused exclusively on capital gains, and less on dividends, many companies decide to reduce or even not pay dividends.

2. Dividend theories

Since the mid-20th century, many theories have been developed to explain how, why and what influences the dividend policy of companies. One of most cited theories are: signaling theory, agency cost theory, theory of dividend policy and the hierarchy of capital structure, free cash flow theory, the firm life cycle theory and many others.

Dividend changes should be accompanied by changes in the company's profitability according to the signaling theory. In a market where information symmetry reigns, all participants have the same company information. If one group of participants has superior company information than others, there is information asymmetry in the market. The assumptions underlying signaling theory are that dividends reduce information asymmetry by acting as a reliable signal that corporate insiders send to shareholders. Simply put, introducing a dividend or increasing the dividend is interpreted by market as positive information, which results in an increase in the stock price. Reducing the dividend or canceling the dividend transfers negative information to the market and the stock price drops. Miletić (2011) in his research conferred the applicability of signaling theory in the Republic of Croatia. Author examined the influence of unexpected dividend change in positive and negative direction as well as the influence of unchanged dividend announcement on stock price on the Zagreb Stock Exchange. Unexpected dividend increase announcement resulted in statistically significant stock price increase on the announcement day. Return gained on the announcement day was 1.56% higher than expected. Companies which announced unexpected dividend decrease showed statistically significant abnormal stock price decrease on the day before dividend announcement (Miletić, 2011, 155).

On the other hand, theory of dividend policy and the hierarchy of capital structure theory says that companies will first try to finance their investments from the realized profit, as the most low-cost source of financing for the company. If it does not make a large enough profit, the company will be financed by borrowing and issuing new shares. If a company has higher borrowing costs, it will pay smaller dividends to avoid costly external financing. Jensen and Meckling (1976) developed the agency cost theory. In the context of this theory, dividends reduce cash under the manager's control, creating a need for management to turn to the capital market to obtain the necessary cash to finance planned investments. In such a situation, management is put under the control of the capital market and reduces the owner's need for supervision of management. Free cash flow theory is just another variation of agency cost theory. Free cash flow theory highlights that first time paying a dividend or increasing the dividend actually means reducing the ability of management to misuse the company money. Baker and Wurgler (2004) have developed a catering theory according to which companies pay or increase dividends in a situation where investors put premiums on shares of dividend paying companies.

There are a large number of developed theories that try to explain what are the key determinants that influence the shaping of the decision on dividends. All these theories contain their own indicators that try to explain the process and result of the dividend policy. The aim of this paper is to examine what affects the dividend policy of companies listed on the Zagreb Stock Exchange, not limiting itself to dividend theories and their specific variables, but exclusively to examine the influence of selected indicators on the corporate dividend policy of companies listed on the Zagreb Stock Exchange.

3. Sample and variable description

3.1. Sample description

The sample for the research consists of shares included in the CROBEX plus index at the beginning of 2023. When selecting shares that will be part of the CROBEXplus index, only shares listed on the regulated market that meet the following conditions are taken into account: number of trading days greater than 60% of the total number of trading days in the six-month period preceding the audit and free float market capitalization greater than EUR 1.3 million.

At the beginning of 2023, the CROBEXplus index contained 23 stocks. Out of a total of 23 stocks, 18 stocks were included in the research. Three were excluded because they were financial companies, while there was not enough data for two stocks (they were not included in the index long enough).

The years from 2012 to 2018 were taken as the research period. Later years were not included in the research due to the Covid pandemic, which had a major impact on the company's operations and the results would be incomparable with other dividend policy research.

The selected stocks included in the research account for 54.29% of the realized stock turnover in the observed period, and represent on average 26.25% of the market capitalization of stocks listed on the ZSE.

3.2. Variable description

Dependent variable is presented with dividend per share (DPS). Independent variables can be categorized in two groups. One group is indicators related to the capital market and market indicators: the share of realized turnover of the share in the total share turnover of the Zagreb Stock Exchange (Turnover), the share of the company's market capitalization in the market capitalization of the Zagreb Stock Exchange (MC). The second group are profitability indicators, because dividends are paid out of realized profits, so the following indicators belong to this group: earnings per share (EPS), return on capital (ROE) and return on assets (ROA) and EBITDA margin (EBITDA_m). The variables from second group were collected from Thompson Reuters data base, while indicators related to the capital market and market indicators were calculated according to collected data from ZSE.

3.2. Sample empirical research

For the purpose of econometric data analysis, dynamic panel data analysis was employed in the research. The dynamic panel data was estimated using Arellano-Bond (1991) estimator. Arellano and Bond dynamic panel estimator with independent variables is shown by the following equation:

$$y_{it} = \mu + \gamma y_{i,t-1} + x'_{it}\beta + \alpha_i + \varepsilon_{it}, \quad i = 1, \dots, N, t = 1, \dots, T \quad (1)$$

where y_{it} is the dependent variable presented with dividend per share (DPS), $y_{i,t-1}$ is the lagged dependent variable, x'_{it} is matrix of type $1 \times K$ independent variables which are discussed in section Variable description. α_i is an unobserved individual effect and ε_{it} is an unobserved white noise disturbance. γ and β are regression coefficients.

Descriptive statistics for all individuals in consider period of research are provided in Table 1.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
DPS	126	17.35	40.80	0.00	320.00
EPS	126	-159.34	1412.35	-15227.71	153.19
ROA	125	2.30	8.05	-31.90	17.80
ROE	121	9.76	105.14	-354.40	868.10
EBITDA_m	126	19.08	41.89	-49.70	443.00
Turnover	126	0.03	0.04	0.00	0.21
mc	126	0.01	0.02	0.00	0.13

Source: Authors

The matrix of Pearson correlation coefficients and Variance inflation factors for independent variables (VIF) was implemented to test the problem of multicollinearity. Correlation matrix for independent variables is shown with table 2 while VIFs are shown in table 3. An absolute value of the Pearson coefficient higher than 0.7 indicates a strong correlation between independent variables. It is evident that multicollinearity problem occurs between variable Turnover and MC. Because variable MC has the highest VIF factor (table 3) it was excluded from research.

Table 2: Correlation matrix

	EPS	ROA	ROE	EBITDA_m	Turnover	MC
EPS	1.0000					
ROA	0.3233*	1.0000				
ROE	0.1523*	0.3934*	1.0000			
EBITDA_m	0.0911	0.0655	0.0459	1.0000		
Turnover	0.0189	0.2934*	-0.0091	0.0803	1.0000	
MC	0.0720	0.3445*	-0.0033	0.1184	0.8773*	1.0000

* $p < 10\%$

Source: Authors

Table 3: Variance inflation factors for independent variables (VIF)

Variable	VIF	1/VIF
MC	4.57	0.218958
Turnover	4.37	0.228682
ROA	1.51	0.661783
ROE	1.21	0.82325
EPS	1.15	0.870999
EBITDA_m	1.03	0.974276
Mean	VIF	2.31

Source: Authors

After examining the potential multicollinearity problem and omitting Turnover variable from research, Arellano and Bond dynamic panel estimator was used in the research. Table 4 shows the results of dynamic panel data analysis. In the same table results of Sargan test and Arellano-Bond test for autocorrelation are provided as well. Based on the p value of Sargan's test, which amounts to 0.1367 it can be concluded that the instruments are not correlated with the residuals and that there is no endogeneity problem in the model. Based on the p value of the m2 test (Arellano-Bond test for autocorrelation of the second order), which accounts for 0.1981, the null hypothesis of no correlation is not rejected. Consequently, it can be concluded that there is no autocorrelation problem in the model.

Cross sectional dependence is a problem that is ignored in the situation when the research has a small-time dimension (T) such as this research, also this problem also grows with T and is used for large T. Based on the above written, the research did not examine cross sectional dependence.

Table 4: Parameter estimates of dynamic panel model

Variables	DPS
DPS L1	0.0376723*** (0.0130343)
EPS	-0.001087** (0.0004434)
ROA	0.5367284*** (0.1785672)
ROE	-0.0110263** (0.0053492)
EBITDA_m	-0.0139977** (0.0065327)
Turnover	-170.3181* (88.78833)
cons	14.36926*** (4.003586)
Number of instruments	9
Number of groups	18
Sargan test	p value = 0.1367
Arellano-Bond test for autocorrelation - order 2	p value = 0.1981

*,**,*** Statistically significant at the; 10%, 5%, 1% level, respectively. Standard errors are between parentheses.

Source: Authors

Table 4 summarizes the final results of empirical analysis. Dynamic panel data analysis showed that lagged variable has statistically significant positively influence on dividend per share, same as ROA. While variables: EPS, ROE, EBITDA_m, Turnover have significant negative influence on dividend policy measured with DPS.

4. Results and conclusion

As table 4 summarized the results of empirical analysis where it can be seen that lagged variable (DPS L1) has statistically significant positively influence on dividend per share, same as ROA. This results are expected. Companies that pay dividends are often guided by a stable dividend policy where they pay attention to the amounts of past dividends and make decisions about future amounts of dividends based on dividends already paid. Regarding the positive relationship between return on assets (ROA) and the amount of dividends per share, many studies have established positive relationships between profitability and the amount of dividends, which in this case confirms the relationship between ROA and DPS. However, in this research, this cannot be applied to the relationship between other profitability variables: EPS, ROE and EBITDA margin, whose relationship is negative with the amount of dividend per share.

The authors find the explanation for the negative relationship between the profitability variables EPS, ROE and EBITDA margin and dividend per share in the fact that the ZSE is a small stock exchange where investors are much more interested in capital gains rather than income through dividends. In a situation where investors expect to receive income through capital gains, companies are not interested in taking significant care of dividends, and attempt to return excess profitability to their investors through increased share price growth.

Another reason for such a negative relationship can be explained by the firm life cycle theory of dividends, according to which, as the company matures, its investment opportunities are less and less, and in the later mature phase it is decided to pay dividends. While it is in an upward phase characterized by a high degree of profitability, the company is primarily oriented towards taking advantage of investment opportunities and using as many of its internal cheaper sources of financing as possible. As the companies listed on the ZSE are relatively young and still have significant opportunities for growth, the applicability of this theory to explain the negative relationship between most profitable variables and dividends per share is significantly justified. This connection can be confirmed by the already mentioned fact according to which the factor that can affect the payment of dividends is the sentiment and affection of investors on the market towards dividends. As stated, in conditions of market growth such as in the early 90s of the 20th century in the USA when many new companies went public, investors were primarily oriented towards stocks with potentially high growth rates and where expected to achieve a high capital gain. In addition to such stocks, the majority of investors ignored stocks with stable ("average") price growth, which provide their investors with income primarily through dividends. In such situations, when the market is dominated by investors focused exclusively on capital gains, and less on dividends, many companies decide to reduce or even not pay dividends.

Turnover has a significant negative impact on dividend policy as measured by DPS. The above can be explained by the assumption according to which companies whose shares are less traded on the stock exchange will try to attract investors by paying dividends.

Also, this connection supports the firm life cycle theory of dividends, because when companies enter a mature stage, they pay out larger amounts of dividends and such shares are traded less, because investors who expect and/or want to earn income through dividends do not often sell shares that provide them with the possibility of making dividends. Investors whose primary interest is to receive income through dividends do not often sell dividend-paying stocks, and such stocks are less traded. On the other hand, shares that bring their investors mainly capital gains are shares that are often subject to trading, and as a result, a larger turnover is achieved with them.

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A scientific paper

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THE ECONOMIC ASPECTS OF KOSOVO – SERBIA NORMALIZATION: FROM PAST TO FUTURE

ABSTRACT

Ever since Kosovo declared independence in 2008, Serbia and Kosovo remained deadlocked over the issue of its status settlement. While majority of the Western community recognized its independence, five non-recognizers within the EU prevent it from formally speaking with a single voice on the matter of Kosovo's status. Nevertheless, under the guidance of the EU structures and USA, various attempts were made to put aside divisive political issues by focusing on economic topics in the process of Kosovo – Serbia dialogue, referred to as normalization of the relationship. This work examines precisely these, economic topics which were tackled through various forums, achievements of the dialogue, implementation of the negotiated commitments, and difficulties in the process. It examines the 2011 Belgrade – Pristina technical dialogue, high level negotiations leading to the 2013 Brussels Agreement, difficulties in the following implementation phase, and the 2020 Washington Agreement. The purpose of economic topics was to improve lives of ordinary citizens, to break the stalemate in political negotiations, and to diffuse the tensions. However, it was difficult to disentangle them from the political issues, since different views on the status were always present in technical talks. It is encouraging that the progress in the dialogue was achieved because of future in the EU, and with the Western mediation. The achieved progress confirms desirability of the EU membership, as the ultimate prize of the membership negotiations, despite numerous challenges that the EU has faced in recent years. The Kosovo – Serbia dialogue progressed unevenly and was often met with resistances. Nevertheless, advancements were gradually made and the parties worked to lessen the gap between them. Continued engagement of the Western actors with Western Balkans' politicians will be needed in future.

Key words: *Kosovo, Serbia, EU integration, conflict mediation.*

1. Introduction

This work examines the economic aspects of the dialogue between Kosovo and Serbia which has been conducted under the auspices of the Western actors since 2011. The economic topics have been tackled at various stages of the dialogue so far, and they aimed to avoid par excellence political issues. The latter created divisions between the two and stemmed from their different views on Kosovo's status (see section 1). It was often referred to these topics as technical – they affected day-to-day lives of ordinary people in both Kosovo and Serbia, but aimed to avoid tackling Kosovo's status. The dialogue produced both political and technical advancements, with the latter being of interest for this work, but a more comprehensive arrangement to define the relationship between Kosovo and Serbia is yet to happen. To enable progress in the dialogue and express its conditionality vis-à-vis both Kosovo and Serbia, who both aspire to be integrated into the EU structures, the EU deliberately used vaguely defined

term "normalization" of the relationship between the two as a requirement for further steps in the integration. It enabled the EU to circumvent its internal division on the Kosovo status issue (section 1), but to define its expectations for both Kosovo and Serbia for their EU integration bids.

The normalization has not been clearly defined in either EU documents or various studies of either Kosovo or Serbia, or their mutual relationship. Having in mind this caveat, the normalization could be understood as a comprehensive arrangement – or steps that progressively lead toward it – that defines the relationship between the two, resolves open issues between them, enables them the international integration, and respects the EU's spirit of good neighborliness.

As mentioned, apart for resolving their mutual relationship, both Kosovo and Serbia have engaged in the dialogue to advance the EU integration from their respective stages. Serbia's goals included gaining the EU membership candidate status, opening membership negotiations in general, and specific chapters; while Kosovo desired a positive outcome of the feasibility study for the Stabilisation and Association Agreement (SAA), securing the SAA with the EU, and visa liberalization.

The fact that both sides have engaged in the dialogue (sections 2–4) and that they were willing to search for mutually acceptable agreements despite the difficult past, are encouraging conclusions that demonstrate persistent desirability of the EU integration (see also section 5). The EU's influence in the Western Balkans at the time of the ongoing dialogue has been challenged by Eastern economies (e.g. Bieber 2020). Additionally, progress that both Kosovo and Serbia made in downloading Western norms and institutional logic over the past two decades left a lot to be desired. On the one hand, Serbia's political elites have frequently resisted EU's expectations ever since the beginning of the integration process (e.g. Massari, 2005; Fink-Hafner, 2008). This is in no small part due to anti-Western political ethos which persisted even after Milošević's downfall (Dawson, 2014; Erjavec & Volčič, 2007; Subotic, 2011), which fueled anti-EU opposition (Konitzer, 2008). On the other hand, nationalism was also persistent in Kosovo, despite the generally embraced EU integration (Koneska, Huskić & Krasniqi, 2022). There was also a problem of widespread political violence and weak transfer of Western values (King & Mason, 2006; Nenadović, 2010).

Despite all the mentioned pitfalls which could have prevented the parties from engaging in the EU mediated dialogue, they persisted. Although they might have been unwilling to accept the EU norms and values, or might have even resisted them, they rationally decided to engage with the EU and each other to further the integration (e.g. Economides & Ker-Lindsay 2015). For example, all the mainstream parties in Serbia have been pledging not to recognize Kosovo, following its declaration of independence (Armakolas & Maksimovic, 2013; Mladenović, 2019). The desirability of the integration is what confirmed EU's leverage over potential member countries in the Western Balkans. The literature so far suggested that the EU's relationship towards potential member countries is a hierarchical one: they are expected to accept the EU's norms and institutional logic, if they are to further their EU bids (Elbasani, 2009; Schimmelfennig & Sedelmeier, 2004)

The dialogue between Kosovo and Serbia was mostly mediated by EU actors, with the support of the USA. Previously, the EU had already taken tasks of mediating or facilitating political processes in the Western Balkans and elsewhere (eg. see Bergmann et al., 2019). Notably, its role was prominent in negotiating the 2001 Ohrid Framework Agreement in North Macedonia (see Bieber, 2020, 54) and the 2002 Belgrade Agreement, which established the brief State Union of Serbia and Montenegro. To strengthen its capacities, the EU adopted the first strategic document to guide its role in mediation (European Council, 2009) and in 2011 established Mediation Support Team, which assisted the Belgrade–Pristina technical stage of the dialogue in the same year (see section 2).

This work is organized as follows. It starts with the section which briefly introduces the most important political developments in the recent Kosovo – Serbia relationship. Then, it proceeds to examine the starting, technical phase of the dialogue between the two. The following section examines the dialogue leading to the 2013 Brussels Agreement. The penultimate section focuses on the strained dialogue in the years that followed and the 2020 Washington Agreement. The last section draws conclusions on the economic aspects of the dialogue and the role of the Western actors.

2. Political background of the recent Kosovo – Serbia relationship

Following the NATO military campaign against Yugoslavia in 1999, Kosovo was assigned the United Nations Interim Administration Mission (UNMIK), provided by the UN Security Council Resolution 1244 (UNSC, 1999). The Resolution treated Kosovo's status in less than certain terms: it both affirmed Yugoslavia's sovereignty and defined what was vaguely called a "political process" as a path to final settlement of its status issue. In the years that followed the international community made several unsuccessful attempts to reach a consensus on the Kosovo final status through informal bodies and under the UN auspices. The former included works of the Contact Group (The Independent International Commission on Kosovo, 2000) and later Troika, which both included representatives of the EU structures, Russia, and USA. The latter efforts were guided by the UN Secretary General Special Envoy for the Kosovo status process Marti Ahtisaari (Perritt, 2009; Bergmann, 2020; Economides, 2011).

The EU itself also remained internally divided on the status issue. While majority of EU member states opted for Kosovo's independence and recognized it following Kosovo's decision to declare it in 2008, there were also countries with reservations toward such a course, which resulted with five non-recognizers among the EU members (Economides & Ker-Lindsay, 2015). Serbia, backed by Russia in the UN Security Council, refused to accept Kosovo's secession. The absence of unanimity to Kosovo's status and EU's attempts to address it united on the issue (e.g. see BBC News, 2007) prevented establishing membership related conditionality to Serbia's Kosovo policy.

However, among the developments that followed, two were of particular importance for shaping the Kosovo – Serbia relationship. Firstly, the UN General Assembly adopted a consensus resolution in 2010 that diverted the dialogue between the two parties to the EU as a forum, instead of the UN, in the interest of stability, peace, cooperation, and betterment of lives of the people (General Assembly, 2010). Consequently, in the following year the dialogue between the parties had started in Brussels and with the EU's service as a facilitator (see Bergmann, 2020). Secondly, following German Chancellor Angela Merkel's August 2011 visit to the Western Balkans (BBC News, 2011), the EU increased its efforts to confront the parties in the dialogue with conditionality related to progress in the EU integration. The European Commission (2011) demanded "normalization" of the relationship between Kosovo and Serbia. This is a vague term that could bridge the differences between the EU members regarding Kosovo's status, but it allowed the EU to lay out clear expectations to both parties for their integration bids. The EU's conditionality led to the 2013 Brussels Agreement (e.g. The Government of the Republic of Serbia, 2013), a major landmark in the dialogue under the EU auspices. The progress in the dialogue beyond the 2013 had mixed results (see section 4): many new agreements were negotiated on implementation of the Brussels Agreement, but political differences virtually halted any progress after 2016. A new impulse to the dialogue came from the USA, which resulted with the 2020 Washington Agreement.

3. Economic aspects of the 2011 "technical dialogue"

The earlier mentioned 2011 dialogue was the starting phase of the talks which were supposed to address the standing issues between Kosovo and Serbia, and it was referred to as the Belgrade-Pristina technical dialogue (e.g. see Tannam, 2013). The following phase that started in late 2012 and led to the 2013 Brussels Agreement involved heads of governments and it was referred to as the high-level political dialogue. Despite the differences on paper, in practice, technical issues were often difficult to disentangle from the political ones (see also section 5). The technical phase of the dialogue involved nine rounds of negotiations altogether, and it spanned from March 2011 to February 2012 (see also in Bergmann & Niemann, 2013).

The dialogue was supposed to be a starting point of a process that would lead to reconciliation between the Albanians and Serbs. However, some issues were put aside, including war reparations and unresolved political issues which created the rift between the two parties, with the later including the status of Kosovo itself and the status of Northern Kosovo. The latter had a dominant Serb population and was effectively the subject of dual sovereignty of Kosovo and Serbia.

The parties realized that addressing the status issue at an early stage of the dialogue could have posed an unsurmountable obstacle. Instead, they opted to search for ways to improve the region's economic development, as well as to address security issues and the public order. The smuggling in Kosovo was rampant, especially in the Northern Kosovo. However, the local court in Mitrovica was paralyzed, able to judge only a limited number of cases, judged by internationals from the European Union Rule of Law Mission in Kosovo (EULEX) – the EU's civil mission which was implemented in Kosovo in 2008 (International Crisis Group, 2011). There was also a confusion of legal norms from former Yugoslavia, UNMIK, and Kosovo that applied to cases (Lunacek, 2012).

To avoid the divisive political issues and pending a more comprehensive solution for Kosovo, the two parties focused in the early stages of the dialogue on practical issues affecting lives of Kosovo residents. The first round of the dialogue included discussions on the civil registry, cadaster, border crossing points, customs seals, and the Central European Free Trade Agreement (CEFTA). The last is an international trade agreement between countries in Central and Southern Europe whose signatories since 2007 included Serbia and UNMIK for Kosovo, but required an equal and constructive approach from the parties and abstaining from obstructing each other in other forums. The first round did not produce any concrete solutions, but the parties continued to work in good faith.

The search for practical solutions continued in the second round of the negotiations, which included the continued discussions on the topics from the previous one (Barlovac & Çollaku, 2011). Some concrete progress has been achieved since Serbia decided in principle to provide copies of the civil registry, while the EULEX was supposed to complete the practical work. In addition, the discussed topics included the air traffic, Kosovo's participation in the regional initiatives, telecommunications, and the dispute over electricity supply in Kosovo. The last two were particularly sensitive since the respective companies performed important service to the residents, but involved continued operation of companies from Serbia – viewed as an intrusion into its market by Kosovo.

The third round involved continued dialogue on the previous topics and brought the agreement on the cadaster books near conclusion, which was important to legally determine who owned the land and real estate in Kosovo. Additionally, the parties tackled a very important topic of the freedom of movement, one of the cornerstone aspects of the EU integration, as well as the license plates for vehicles, and the mutual recognition of university diplomas. In the fourth round the parties came closer to agreeing on the freedom of movement, while the discussion was still open on the issues of electricity and telecommunications.

The fifth round produced the first agreement between the parties, although it was reached without the official signing (Marzouk, 2011). It was agreed that the people from Kosovo could cross the disputed border with Serbia with ID cards. Additionally, Serbia agreed to hand copies of the civil registry to the EULEX, which was supposed to act as an intermediary providing certified copies to any interested citizens. The problem stemmed from withdrawal of the registries following the 1999 war. It affected lives of ordinary residents of Kosovo in many ways including employment, various transactions, bank and financial registries, social welfare benefits, as well as fight against criminality and trafficking. Finally, the parties agreed in principle to mutually recognize school and university diplomas – especially important for people living close to the border and studying on the other side of it – which affected employment opportunities.

Several new breakthroughs were achieved in the sixth round of the dialogue (see *The Dialogue*, n.d.). To protect the property rights of the people, both parties pledged to make efforts to establish a reliable cadaster in Kosovo, which meant that Serbia would handover scanned copies of the records to the EULEX. Additionally, both parties agreed to enable free movement of goods in accordance with the principles of CEFTA, which also implied that Kosovo would revoke its unilateral ban on import of the Serbian goods. Furthermore, they decided to use "Kosovo Customs" without state symbols. Finally, the checkpoints and crossings in Kosovo would be controlled by Kosovo officials.

The following round did not produce tangible outcomes, but the eight round in December 2011 resulted with the agreement on the Integrated Border/Boundary Management (IBM). Both parties, in the light of their mutual efforts to be integrated into the EU and to harmonize their legislation with it agreed to gradually erect joint integrated posts at their common border crossings, in line with the best European practice and with balanced presence of both (see *The Dialogue*, n.d.). Serbia interpreted the IBM as the agreement that regulated management of the administrative boundary line, whereas for Kosovo it was an inter-state border. This agreement was a great step toward enabling free movement of people and goods; improving coordination of border police, customs, and other agencies of both Kosovo and Serbia; improving exchange of information and fight against illicit trade; enhancing security; easing cross-border procedures, which included facilitating collection of revenues; and meeting requirements of the EU accession process.

Finally, the last round of the technical Belgrade–Pristina dialogue from February 2012 resulted with what is widely known as the "the footnote agreement", which allowed Kosovo to be represented at both existing and future regional international forums. Kosovo was to be represented without the prejudice to its status, followed with an asterisk and a footnote which clarified that its status was in line with the UN Security Council Resolution 1244 and the opinion of the International Court of Justice on its declaration of independence.

Following this agreement, Kosovo was granted the right to participate on its own in regional organizations, to speak for itself without the UNMIK, and to enter agreements. As a consequence, the Feasibility Study on the SAA for Kosovo designated with a footnote was made in 2012 (European Commission, 2012b), and the SAA itself, the first contractual agreement with the EU, was signed in 2015 (Council of the European Union, 2015). Additionally, Kosovo became a member or observer of more than thirty regional international forums, including the Berlin Process, Vienna Economic Forum, and Western Balkans Investment Framework (*The Dialogue*, n.d.), which benefited trade opportunities, investment, connectivity in the energy sector, transport, and research. However, in the following years, there were cases when the representatives of either Kosovo or Serbia refused to participate in international forums because of the other side, which suggested that the political relationship remained volatile and that work still remained toward the normalization.

4. The 2013 Brussels Agreement: A new impulse for normalization

The most of 2012 was a hiatus in the dialogue after the general elections in Serbia, but it continued in October, elevated to the prime ministerial level. For the Serbian side, the negotiations were led by Ivica Dačić, whereas Hashim Thaçi represented Kosovo. The negotiations that took another ten rounds were concluded with the 2013 Brussels Agreement, which is a widely known colloquial name for the "First Agreement of Principles Governing the Normalisation of Relations" (The Government of the Republic of Serbia, 2013).

For both sides the Brussels Agreement was a milestone on the path towards the EU integration. Since the late 2011 the EU structures prioritized Serbia's engagement with Kosovo within its policy of membership related conditionality (Mladenović, 2022). As an illustration, the European Commission (2012a) was critical of Serbia's continued contestation of Kosovo's independence and demanded that the two continue separately on their European paths. It also expected peaceful integration of municipalities with the Serb majority under the Kosovo law. The European Council (2013) also expected "a visible and sustainable improvement" in the Kosovo–Serbia relationship and marked it as the key membership priority. Only after concluding the Brussels Agreement Serbia was granted the start of the EU membership negotiations by opening the First Accession Conference in January 2014 (European Council, 2014).

On the other hand, Kosovo also needed to engage in the dialogue to move the integration forward. However, unlike Serbia, it regarded the political dialogue strictly within the framework of developing good-neighbourly relationship, which was the EU integration requirement (Government of the Republic of Kosovo, 2011). Prior to the Brussels Agreement in 2013 the European Commission's (2012b) Feasibility Study for the SAA with Kosovo signaled that the lack of EU's internal coherence on Kosovo would not impede its path of integration.

The Brussels Agreement itself mostly tackled political aspects of the strained Kosovo – Serbia relationship, which is outside of the scope of this work (e.g. Mladenović, 2022). In essence, it allowed peaceful integration of the Serb communities into the Kosovo institutions, whose sovereignty was also consolidated (see Gashi, 2013). It was an important step towards improving the rule of law by integrating the judicial authorities under the Kosovo law (The Government of the Republic of Serbia, 2013, article 10), as well as security structures (articles 7–9). It also invited the two parties to intensify the dialogue on energy and telecommunications (article 13), which was already under way since the 2011 technical dialogue.

However, the negotiations leading to the Brussels Agreement tackled numerous economic issues. The dialogue was restarted in October 2012 by circumventing the contested political issues and by tackling what was seen as "technical questions" affecting the citizens' lives (Deutsche Welle, 2012). These included electricity and water supply, recognition of personal documents, the IBD, and simplification of the customs procedures.

The talks continued in early November, few days after US Secretary of State Hillary Clinton visited Belgrade in support of EU's mediation efforts, by tackling problematic aspects of implementation of already negotiated agreements, including the IBM (Barlovac, 2012b). The two parties also discussed construction of the Niš–Pristina highway as a joint project which was supposed to facilitate transit in the Balkans. This topic, although never a part of the concluded agreements, was also discussed during the previous technical dialogue and was made possible because of the 2012 agreement on Kosovo's regional representation.

The negotiations produced a tangible outcome in December 2012, when two border crossings were opened at Jarinje and Merdare, while two more have been scheduled to open later that month (UNPO, 2012). Officials from both Kosovo and Serbia were to start working together, under the same roof, for the first time after the 1999 war, albeit in a status neutral capacity,

without any state insignia. It was hoped that the crossings would help easing the tensions between the peoples, as well as improve freedom of movement. Smuggling was also flourishing and policing was poor in the border area for years. Additionally, both Serbia and Kosovo agreed to assign a liaison officer to the other, while the EU was supposed to provide offices (Barlovac, 2012a).

Unfortunately, problems with administrative/border crossings did not end there. As far as Serbia was concerned, certain goods intended for Northern Kosovo with the Serb majority were supposed to enter Kosovo duty-free, whereas the authorities in Pristina insisted on paying taxes on all of these goods (Ristic, 2013). Serbs in Northern Kosovo were also strongly against paying any customs on goods from Serbia and demanded to be included in its VAT system. After another round of the dialogue in January 2013, the prime ministers of the two sides agreed to have a special fund established under EU auspices. The customs from the mentioned crossings would contribute to the fund, and it would serve to improve various services in the Northern Kosovo (Rettman, 2013). Next meetings within the framework of the EU mediated dialogue focused on political issues and led to the Brussels Agreement in April 2013.

5. The dialogue beyond the 2013 Brussels Agreement

Following the Brussels Agreement, in the 2013–2016 period, a number of follow-up agreements between Kosovo and Serbia were reached based on previously initiated talks, which sparked moderately optimistic expectations in the European circles about prospects of the normalization. Important achievements in this phase of the dialogue included agreements on energy supply and telecommunications from September 2013. The former aimed at normalizing energy relations and regulated the relationship between transmission system companies from Kosovo and Serbia. A new company (Elektrosever) was supposed to be established in accordance with the Kosovo law, to supply electricity to Serb-majority municipalities. The intention of the agreement was also to reduce negative effects of unauthorized energy transmission in the said municipalities. The Serbian transmission operator was supposed to support the Kosovan one for the ENTSO-E membership – the organization that unites European electricity transmission system operators with an aim to liberalize markets. However, since Elektrosever did not register according to the Kosovo law, the deal to regulate electricity supply for consumers in Kosovo's northern municipalities would only be reached in 2022, under EU's mediation (Spasić, 2022).

The later agreement on telecommunications was reached at the same time as the former one, ending two years of negotiations. Ever since the 1999 war, several telecommunications companies operated in Kosovo using different country codes. This situation drove the telecommunication prices up for the ordinary people, which particularly affected Serbs in Kosovo and Albanians in neighboring municipalities in Serbia. Following the agreement, Kosovo was assigned a unique international dialing number. Serbian service providers, previously unlicensed in Kosovo, had to register in accordance with Kosovo regulations. A sister company to the Serbian Telecom Srbija telecommunications provider was granted a license in Kosovo. As the following steps, roaming charges among the countries of the Western Balkans were reduced by 80 percent in 2019, and then completely eliminated, with the support of the European Commission (2021) and in line with EU principles, contributing to the significant increase in data traffic in the region.

However, by 2016 the dialogue was stalled, mainly because of the two reasons (see in Emini & Stakic, 2018). Firstly, the previous agreements often relied on ambiguous phrasing, allowing both sides to interpret meanings of the reached agreements differently. Although this ambiguity enabled progress, it only delayed tackling the problems into the implementation phase.

Difficulties stemmed from Kosovo's and Serbia's different views on independence of the former. Secondly, the relationship between the two peoples has been easy to inflame by political developments. Causes for political tensions between the two included arrest of Kosovo's Prime Minister Ramush Haradinaj in 2017 based on the Serbian warrant for war crimes and the consequent outrage of the Kosovo's Parliament, confrontational rhetoric by the politicians, nationalism, and electoral processes. A further hindrance to normalization was Kosovo's 2018 introduction of high tariffs on goods imported from Serbia which had a high cost on Serbia's exporters. This was a response to Serbia's international lobbying campaign of derecognition, which aimed to reduce the number of UN member countries who recognize Kosovo's independence.

After several years of interrupted progress in normalization of the relationship between the two, in 2019 the United States took a more active role in mediation focused on economic issues. The EU led dialogue remained focused on political issues, but it also remained deadlocked due to maximalist demands from both sides, in spite of the initiative from France and Germany to give the dialogue a new wind (Petrović 2020). A small step towards easing the movement of people and goods was in January 2020, after months of shuttle US diplomacy, when the two sides made a deal to restore commercial flights between Belgrade and Pristina, which were ceased among the growing conflict in 1998 (Bytyci, 2020). However, a bigger achievement, a peace conference with the two parties, was yet to happen. The scheduled conference was delayed because Kosovo's president Hashim Thaçi was indicted for war crimes. The conference eventually happened in Washington, in September 2020, where the president of Serbia Aleksandar Vučić and Kosovo's prime minister Avdullah Hoti, in the Oval Office and presence of US president Donald Trump, signed the Washington Agreement – the informal title of the two separate documents on economic normalization (see Milutinović & Pavlović, 2022).

The two documents of the Washington Agreement were identical, except for the commitments the parties made regarding Israel (see Muharremi, 2021). This Agreement, like those already reached in the past (sections 2–3), had both political and economic aspects, with the former beyond the scope of this work. For example, the Washington Agreement reflected both domestic and foreign (e.g. towards the Middle East) policy goals of president Trump, which contributed to its occasional less than welcoming reception in the EU (Wood, 2020; Maksimović, 2020).

Per the Agreement, both Kosovo and Serbia committed to build the already mentioned highway to connect Belgrade and Pristina, as well as a railway (Muharremi, 2021). Additionally, the two committed themselves to cooperation with US based financial institutions (including the United States International Development Finance Corporation – DFC) to support bilateral infrastructure projects. The Agreement also encouraged both parties to mutually recognize educational diplomas and professional certificates. The two pledged to work with the U.S. Department of Energy on a feasibility study for sharing the Gazivoda/Ujman artificial lake on the Kosovo–Serbia border, important because it supports a hydroelectric power station, provides cooling for the two coal plants, and drinking water. Finally, both parties agreed to work on diversification of their energy supply sources, to work with USA based systems to share information on airline passengers, and to refrain from using 5G telecommunications equipment from unsafe vendors (which primarily aimed at China).

Kosovo and Serbia also agreed to put to work Merdare Common Crossing Point Facility, per words of the old 2011 agreement on IBM. Furthermore, they agreed to join the "Mini Schengen Zone" – a regional initiative which has been in preparation since 2018, to improve cooperation and ease tensions between Albania, North Macedonia, and Serbia (later renamed to "Open Balkan").

The goal was to diffuse the political tensions and lessen the barriers to mutual trade. The volume of trade between Kosovo and Serbia has been increasing over the years. For Example, Kosovo's

export to Serbia has increased from a little over seven, to over 48 million euros in the 2011–17 period, while the import has increased from almost 255, to 450 million euros (Kosovo Agency of Statistics, 2022). Additionally, these figures should be taken with a grain of salt due to the factors which include the existence of unofficial crossing points to avoid taxes and duties, lack of accurate records, and corruption in the public sector (Milošević & Hrnjaz, 2018). Therefore, the real figures could have been higher. Nevertheless, they suggest that solutions which were reached in the political dialogue, strained as it was, contributed to positive effects on economic activities. Intermittent political tensions also adversely affected trade. Before the 2011 agreement on free movement of goods (see section 2), Serbia rejected customs documents with the insignia of the "Republic of Kosovo", whereas Kosovo introduced reciprocal ban on Serbian export to Kosovo. Another setback for the normalization was Kosovo's 2018 introduction of 100 percent tariff on the Serbian goods, which came as a response to Serbia's campaign against Kosovo's acceptance into the Interpol (Deutsche Welle, 2018). This resulted with virtual halt of Serbia's export to Kosovo in the following year, and the slow recovery afterwards (Kosovo Agency of Statistics, 2022). The trade barriers were lifted to enable dialogue in 2020, due to demands from the EU and USA. Political tensions also had a significant potential to adversely affect FDI flows (IMF, 2023). Therefore, similar fluctuations could be observed with regards to their inflow to Kosovo, from Serbia, although at an overall low level (Central Bank of the Republic of Kosovo, 2023). Following Kosovo's declaration of independence in 2008, the annual inflow of 5.5 million euros had plummeted, and the figures have consequently varied. In 2020 the inflow surpassed the 2008 per annum number with 6 million euros (Central Bank of the Republic of Kosovo, 2023). The official data on their inflow to Serbia, from Kosovo, were not available.

The track record of implementation of the Washington Agreement has mixed results. A delegation of the American DFC visited Kosovo and Serbia in 2020, affirming its intention to support construction of the "Peace Highway" between them (DFC, 2020). Kosovo officials committed to building this highway, but the implementation has been lagging (Bislimi & Cvetković, 2021). The DFC opened its offices in Belgrade and negotiated with the Serbian government its financial plan for the Serbian companies. Serbia also worked on gathering the required documentation for its part in the highway construction (Ralev, 2020), but the concrete work on building the railway has yet to happen on both sides.

Merdare and Mutivode crossing points became fully operational in 2022, per the IBM agreement, contributing to the total of six common crossing points between Kosovo and Serbia. Besides efforts of the two governments, establishing state-of-the-art IBM facilities required coordinated work of the EU, EULEX, and UN structures (EULEX, 2022). These facilities stand to greatly improve unhindered passage of citizens, reduce the waiting times, and improve lives of ordinary citizens. As far as the "Open Balkan" initiative is concerned, it seems unlikely that Kosovo would be joining it in near future, since prime minister Albin Kurti reiterated his reservations to the project (Bislimi & Cvetković, 2021). Both sides have yet to make legal amendments which would enable mutual recognition of diplomas, although considerable work has already been done within the framework of the agreement already negotiated in 2011 (Normalization, 2011). As far as Gazivoda/Ujman lake is concerned, per the Agreement, the U.S. Department of Energy (2021) produced the Report with its recommendations. However, the situation remains unresolved and it is easy to stir political tensions as both sides maintain claims to facilities in the lake's vicinity (Stojanovic & Bami, 2022). Finally, Serbia started working towards diversification of its energy supply, which included its 2021 beginning of the project to connect the LNG pipeline to Bulgaria's facilities. This would enable gas supply from sources other than Russian, on which Serbia greatly depends. Kosovo's problems in the energy sector include overcoming supply shortages, replacing aging power plants, introduction of

renewable sources, and the lack of natural gas supply. Therefore, both Kosovo and Serbia have a lot more work to do towards meeting the Washington Agreement commitments in this sector.

6. Conclusions

Political disputes between Kosovo and Serbia remain. One or more political agreements that would comprehensively regulate the relationship, and thus achieve the normalization between the two as expected in the documents of EU structures, have yet to be achieved. This section discusses what was the purpose of economic topics within the dialogue, what factors limited greater progress, and what was the role of the Western actors.

The economic aspects of the Kosovo–Serbia dialogue, which were discussed in this work, had several purposes. They aimed to improve lives of ordinary citizens by avoiding divisive political issues that stemmed from opposing views on Kosovo's status. Additionally, introduction of these issues in the dialogue aimed to break the stalemate in negotiations when political talks came to an impasse and to diffuse the tensions between the peoples. The technical Belgrade–Pristina dialogue started in 2011 with such issues, before the dialogue was upgraded to high political level and the 2013 Brussels Agreement was reached. Once again, when political differences slowed down progress in the dialogue, the US led initiative to give new impulse to the dialogue was useful by drawing attention to the economic issues. Therefore, the 2020 Washington Agreement, despite words of caution from its critics, was a useful way to add more genuine problems to the table and to renew interest on the topics already discussed in previous rounds of the dialogue. Each of the steps in the dialogue that seemed small by themselves added to progress towards normalizing a very difficult relationship in the Western Balkans and for the Europe.

On the other hand, it is also evident that political differences affected implementation of the negotiated agreements. The Brussels Agreement had purposeful ambiguity that temporarily circumvent the differences. Unfortunately, they emerged when it came to devising the implementation mechanisms, and delayed progress toward normalization. There were also indications that implementation of the Washington Agreement would be met with resistances and take many years. Additionally, political differences presented challenges for the dialogue on technical issues. It was difficult to disentangle the latter from the former, since the status issue was always implicitly present.

Another encouraging conclusion is that the progress in the dialogue has been made because of the future in the EU, and with Western mediation. This suggests that the policy of conditionality is an effective tool to induce compliance even in difficult cases, and that the EU membership as an ultimate prize of the integration process is still desirable (e. g. see Vachudova, 2005). The EU's image and desirability has been challenged in recent years due to cascading crises (including wars, economic, credit, and migrant crises), challenges coming from the eastern economies (e.g. Bieber, 2020), its internal struggles against the populists (e.g. Kelemen, 2020), and its diminished reputation because of the alleged support for strong-arm leaders (e.g. Bieber, 2018; Cianetti, Dawson & Hanley, 2018). The lack of EU's internal cohesion on Kosovo also did not help its mediation role. However, the EU, along with the USA, was able to mediate a difficult dialogue and help making a gradual progress toward normalization. If it was not for the EU's presence and conditionality, none of the two parties would be willing to participate in the dialogue and possibly compromise to circumvent the divisive topics.

Finally, it is encouraging that despite the problems that burden the relationship between the two dialoguing sides, including the political differences, ethnic based tensions, inflammatory political rhetoric, and difficult past, they have been working to lessen the gap between them. The dialogue appeared to have progressed unevenly and that it has often been met with

resistances. However, this was not the first time that Europeanizing changes took considerable time. For example, it took Serbia a full decade after its democratization to fully comply on the issue of war crimes by delivering all the indicted to Hague (the International Criminal Tribunal for the former Yugoslavia – ICTY) (Mladenović, 2022). Additionally, Kosovo's progress in state building and internalization of EU norms and values has been lesser than hoped for, despite continuous engagement of the Western actors (see Koneska, Huskić & Krasniqi, 2022; Nenadović, 2010). Nevertheless, the dialogue tackled many issues that troubled ordinary citizens and many solutions have been negotiated. For further progress, continued presence of the Western actors in the Western Balkans, along with their engagement with domestic politicians, will be needed in future.

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BUDGET TRANSPARENCY AND BUDGET CREDIBILITY: THE CASE OF LOCAL GOVERNMENT UNITS IN PANNONIAN CROATIA¹

ABSTRACT

This paper analyses the influence of local government budget transparency (LBT) on budget credibility, i.e. on budget expenditures' deviations, in Pannonian Croatia's local government units (LGU). It investigates the differences between Pannonian Croatia and the remaining three NUTS 2 regions (Adriatic Croatia, City of Zagreb, and Northern Croatia) regarding LBT and budgetary deviations in current, capital, and total expenditures. Budgetary deviations are expressed by an LGU's share of the difference between planned and actual expenditures in planned expenditures. LBT, i.e., the online local budget transparency index (OLBI), annually measures the availability of key local budget documents on the official websites of all Croatian counties, cities, and municipalities. The paper conducts a cluster analysis of all 191 Pannonian Croatian LGUs (cities and municipalities) during 2017-2021. The results show that Pannonian Croatian LGUs with the lowest levels of LBT have the biggest budget deviations in current/capital/total expenditures, planning more than executing in the fiscal year.

Key words: *budget transparency, budget credibility, local government units, Pannonian Croatia, cluster analysis.*

1. Introduction

Credibility in economic relations is an important topic. Current measures in fiscal and monetary (Backus & Driffill, 1985; Ball, 1985; Cukierman, 1992; Erceg & Levine, 2003) policy are considered to be credible by economic agents if they believe that they are optimal in the given time period and able to achieve announced outcomes. If economic agents expect them to change, they are not credible.

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Since Pannonian Croatia is experiencing decoupling from the remaining Croatian NUTS 2 regions and consequently strong emigration trends, the aim of this paper is to analyse whether one of the explanations for these trends can be found in local budget policy. Are local budgets credible and is the budget credibility related to budget transparency (BT)? Unlike monetary policy, the local budget policy can adapt to local conditions thus making the question of its credibility both important and unfortunately still largely under-investigated.

“Transparency is generally defined as the principle of enabling the public to gain information about the operations and structures of a given entity” (Finel & Lord, 1999; 316; Heald, 2006; 26). Different authors use different definitions and there is no unique definition for BT. For example, OECD defines BT “as the full disclosure of all relevant fiscal information in a timely and systematic manner” (OECD, 2002; 7). Actually, BT and fiscal transparency are sometimes used as synonyms (e.g. IMF, 2018). However, in our view, fiscal transparency should be broader than BT, since BT is focused only on the transparency of the government’s budgets, and fiscal transparency on transparency of all fiscal information. In this paper, BT is defined as “providing an insight into complete, accurate, timely and comprehensible information regarding the budget” (Bronić et al., 2022: 2-3).

BT is important for good governance, as a mechanism for improving the quality of governance on the national and local levels (Albassam, 2015; Bisogno & Cuadrado-Ballesteros, 2021; CoE, n.d.). Different authors show that BT can help to introduce more efficient and effective public policies leading to better quality public services. BT is essential for constructive participation, quality analyses, comments and corrections of the budget. Thus it enables citizens to participate and potentially impact the efficiency of the collection and spending of public funds, to demand more accountability from the central/local government authorities and, consequently, it reduces corruptive acts and inefficient spending (Bronić et al., 2022: 2-3). More transparent budgets also lead to greater responsibility on the part of the central/local government authorities, leading to increased citizen trust and better communication.

The term *budget credibility* refers to whether a central/local government meets its revenue and expenditure targets during the fiscal year. In this paper, if executed expenditures differ from planned expenditures in the enacted budget, it is said to be either overestimated (planned is higher than executed) or underestimated (planned is lower than executed). Budgets that are not executed as planned directly affect when and how public goods and services are delivered, which could have negative consequences regarding poverty, inequality, and migrations (IBP, n.d.).

Unfortunately, the Croatian Ministry of Finance has not issued any provision in the law or any other regulation regarding local budget credibility. It is only stipulated in the Budget Act (2022) (article 10) that LGU budget plan must be balanced so that total revenues and receipts cover total expenditures and expenditures. If the planned total revenues and receipts are not equal to the planned total expenditures and expenditures, the LGU budget must be balanced by transferring surplus or deficit from previous budget year. If during the budget year, due to extraordinary circumstances, expenses and expenses increase or revenues and receipts decrease, the budget must be amended and budget plan must be balanced with new revenues and receipts and/or a reduction of planned expenditures and expenses. Thus, LGUs normally plan balanced budgets but it often happens that at the end of the fiscal year there is deficit or surplus. If they have ended the fiscal year with the deficit/surplus, LGUs are obliged to include it in the next's years budget proposal and projections for the following two years and present how they plan to balance that deficit/surplus.

Since BT could serve as a fiscal discipline mechanism to control budget deviations and ensure budget credibility, this paper aims to check whether it actually works in LGUs in Pannonian Croatia. The first goal is to investigate the differences between Pannonian Croatia and the remaining three NUTS 2 Croatian regions (Adriatic Croatia, City of Zagreb and Northern Croatia) regarding LBT and budgetary deviations in current/capital/total expenditures. The second goal of this paper is to determine possible clusters within Pannonian Croatia LGUs. The working hypothesis of the paper is that there is a negative correlation between online LBT and budget credibility, which is empirically tested through cluster analysis. Results confirm that Pannonian Croatia's LGUs that exhibit the lowest level of BT exhibit the highest budget deviations in current, capital and total expenditures.

The following section presents a short literature review, the third describes the data and the research methodology, the fourth offers cluster analysis results, and the fifth concludes and summarises observations and recommendations.

2. Literature review

Two theories explain why central/local government politicians are not motivated to adopt the most transparent budgets. It is from the principal-agent theory that a lack of BT may create an advantage for policymakers in reaching their goals – politicians (agents) choose an information structure at the outset to maximise expected utility, taking account of subsequent reactions by the voters' (principal's) (Ferejohn, 1999) but do not always maximise the voters' welfare (Guillamón et al., 2011). Therefore, governments can manipulate budgets to reach their goals, affecting budget credibility. But with higher BT, politicians have less opportunity to manipulate budgets and budget credibility. According to Alt et al. (2002), BT decreases information asymmetries between politicians and voters. Another theory, fiscal illusion, refers to voters' inability to internalise the total cost of public goods and services. This theory argues that incumbents are motivated to hide taxes, overemphasise the benefits of expenditures and smooth over government liabilities, which will require future higher taxes, spending and debts (Alesina & Perotti, 1996a; 1996b). BT depends on the incentives of politicians to publish accurate, timely and complete information. When politicians choose not to be budget-transparent as they are required to be in the budget process, budget credibility can be impaired. Moreover, a lack of BT can increase voter confusion and reduce politicians' commitment to fiscal responsibility. Hence, politicians' common practice is to make over-optimistic or excessively pessimistic budget plans, leading to higher budget deviations (Mayer et al., 1991).

Budget deviations can be defined as inconsistencies between enacted budgets and budget outturns in revenues/expenditures during the fiscal year (Ríos et al., 2018). The collected budget revenues by a government often deviates from the planned revenues (Goeminne et al., 2008), as well as the level of actual budget spending often deviates from the planned expenditures in the enacted budget (Serritzlew, 2005).

Empirical studies researching budget deviations and fiscal/budget transparency are rare. Two papers focus on central governments' fiscal/budget transparency and budget credibility. Sarr (2015) used a sample of 73 developed and developing countries in 2012 and found that improved transparency is associated with higher budget execution rates in the health and education sector, and better projections of GDP growth and inflation. Elberry & Goeminne (2021) have recently shown that an improvement in the oversight of fiscal risks arising from

public sector entities significantly reduces deviations from budgetary forecasts in 57 developing countries for 2012.

Only Ríos et al. (2018) published empirical research about BT and budget deviations at the local level. They used a sample of the 100 largest Spanish municipalities for 2008, 2009, 2010, 2012 and 2014 and found that municipalities that exhibit higher BT underestimate their current expenditures. These municipalities may spend more than they planned since they collect more taxes than they budgeted. Furthermore, municipalities with lower BT tend to overestimate their current expenditures, and they have to spend less than they planned since they are aware of the overestimation of their expenditures.

Based on our literature review and previous studies, we formulate the following *hypothesis*: LGUs with lower levels of online BT have the highest budget deviations in expenditures, i.e. they overestimate their expenditures.

3. Data and Methodology

The first goal is to investigate the differences between Pannonian Croatia and the remaining three NUTS 2 Croatian regions (Adriatic Croatia, City of Zagreb and Northern Croatia) regarding LBT and budgetary deviations in current/capital/total expenditures. The paper uses the National Classification of Statistical Regions 2021 (HR NUTS), a statistical standard used for the collection, recording, processing, analysis and dissemination of regional statistics data according to the levels of the spatial division of the Republic of Croatia (CBS, 2019). The four regions of the Republic of Croatia, according to HR NUTS 2, are:

1. City of Zagreb;
2. Adriatic Croatia (Dubrovnik-Neretva, Istria, Lika-Senj, Primorje-Gorski Kotar, Split-Dalmatia, Šibenik-Knin and Zadar counties);
3. Pannonian Croatia (Bjelovar-Bilogora, Brod-Posavina, Karlovac, Osijek-Baranja, Požega-Slavonia, Sisak-Moslavina, Virovitica-Podravina and Vukovar-Srijem counties); and
4. Northern Croatia (Međimurje, Koprivnica-Križevci, Krapina-Zagorje, Varaždin and Zagreb counties).

This analysis is focused only on Croatian *cities* and *municipalities* while counties are not included. In their self-governing scope, *cities* and *municipalities* perform tasks of local importance that directly meet those needs of citizens that are not assigned to state bodies by the Constitution or law and are determined by the Law on Local and Regional Self-Government (2020). *Cities* and *municipalities* thus perform tasks related to: settlement planning and housing, spatial and urban planning, communal economy, child and social care, primary health care, education, culture, sports, consumer protection, fire and civil protection, improvement of the natural environment, traffic in their area and other tasks in accordance with special laws. *Large cities* (economic, financial, cultural, health, transport and scientific centres of development with more than 35,000 inhabitants) as well as *cities with county seats* perform some additional tasks.

Budget deviations are expressed as the LGU's share of the difference between planned and actual current/capital/total expenditures in planned current/capital/total expenditures and are represented by the following equation:

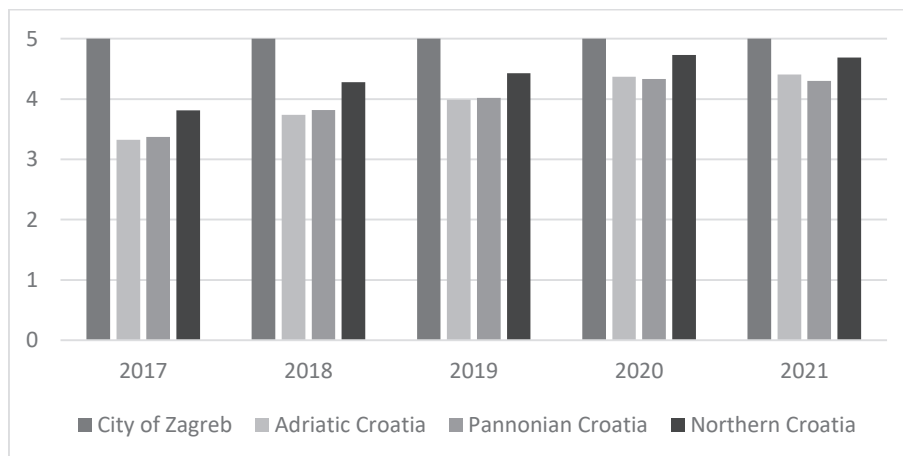
$$dev_in_exp_{it} = \frac{exp_plan_{it} - exp_actual_{it}}{exp_plan_{it}} \cdot 100, i = 1, \dots, I, t = 1, \dots, T$$

Where *exp_plan* represents planned expenditures from the enacted budget; *exp_actual* represents actual and executed expenditures from the year-end report, *i* represents city/municipality (556 in total) and *t* is the year of observation for the 2017-2021 period.

If the planned expenditures are higher than the actual, LGUs are overestimating their expenditures (budget deviations are positive) and this is known as pessimistic budgeting (Mayper et al., 1991; Ríos et al., 2018). Conversely, if planned expenditures are lower than actual, then LGUs are underestimating their expenditures (budget deviations are negative), which is known as optimistic budgeting. Preferably, budget deviations in expenditures should be close to zero, i.e. planned expenditures are equal/similar to actual expenditures.

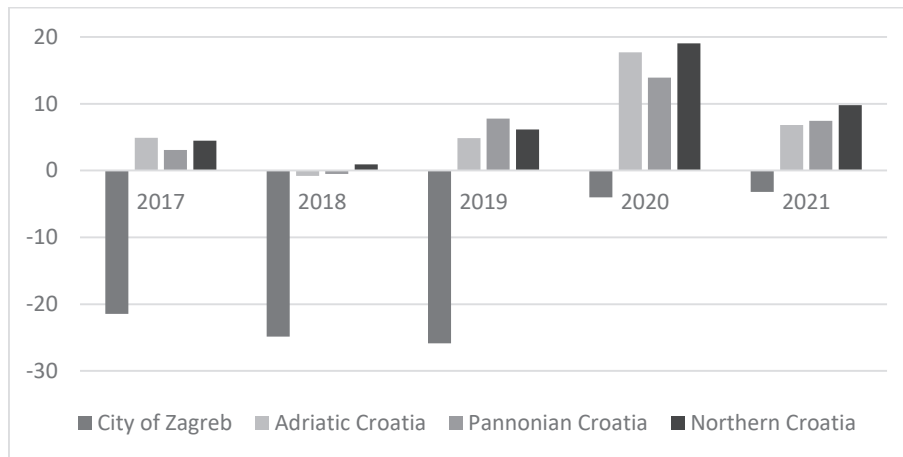
LBT, as represented by the online local budget transparency index (OLBI), has been annually measured from 2014 for all Croatian counties, cities and municipalities in terms of the availability of five key annual local budget documents on the official websites of LGUs. OLBI ranges from 0 to 5, depending on the number of available key budget documents at the time of research (Bronić et al., 2022). Key annual local budget documents are: budget proposal, enacted budget, citizens budget, mid-year and year-end reports.

Figure 1: OLBI scores, Croatian regions (average values)



Source: Authors' calculations based on data from Bronić et al. (2022).

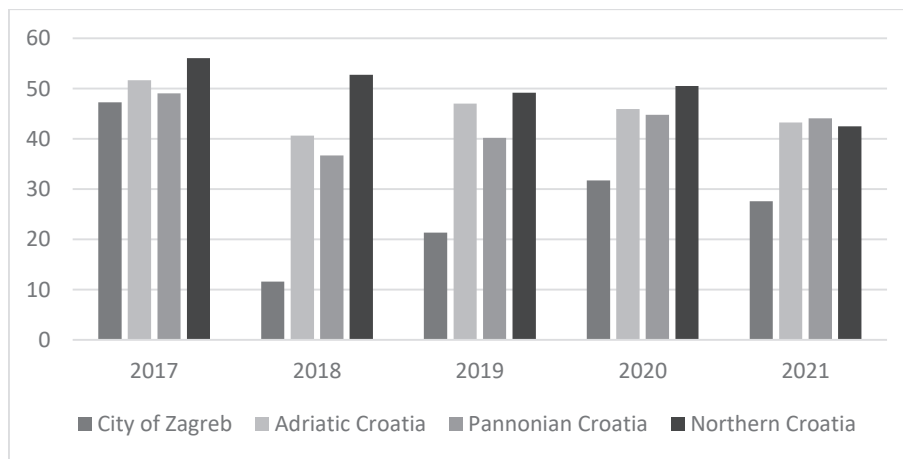
Data on OLBI for four Croatian regions in 2017-2021 (Graph 1) lead to three main conclusions. First, Adriatic Croatia LGUs, on average, were the worst performers in the 2017-2019 period, while Pannonian Croatia LGUs, on average, were the worst performers in the last two cycles. Second, the average values of OLBI for the other three regions show annual improvement during the observed period. Exceptionally, in 2021, LGUs of Pannonian and Northern Croatia were the only regions where average values of OLBI fell. Third, during this period, the City of Zagreb published all five key budget documents.

Figure 2: Deviations in current expenditures, Croatian regions (average values, in %)

Note: Positive deviation means that the plan was higher than execution.
Negative deviation means that the plan was lower than execution.

Source: Authors

It can be seen that during 2017-2021 the City of Zagreb executed much higher current expenditures than planned, even though deviations in 2020 and 2021 are lower than in previous years (Graph 2). In contrast, on average, LGUs in the other three regions in the observed period planned higher current expenditures than they executed.

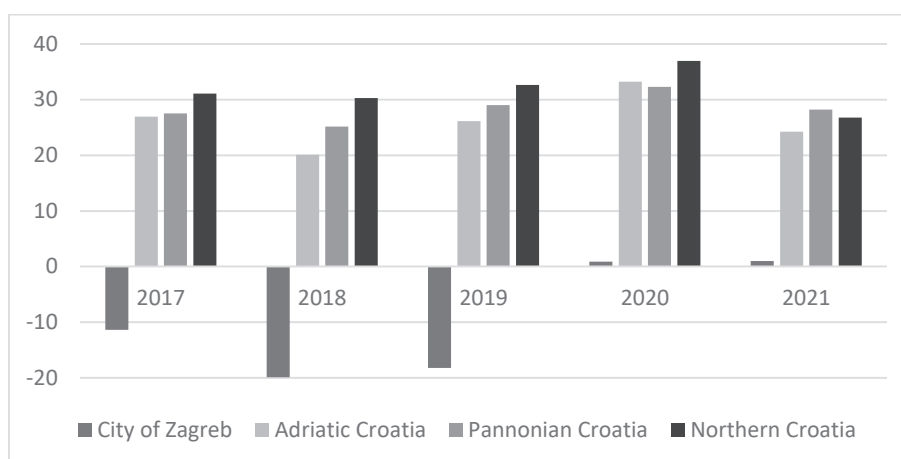
Figure 3: Deviations in capital expenditures, Croatian regions (average values, in %)

Note: Positive deviation means that the plan was higher than execution.

Source: Authors

In the analysed period, LGUs in all four regions planned significantly higher capital expenditures than they executed (Graph 3), on average more than 40% higher! LGUs in Northern Croatia, on average, had the highest deviations from planned values in the period from 2017 until 2020, while in 2021, Pannonian Croatia LGUs, on average, had the highest deviations from planned values. The lowest deviations were in the City of Zagreb.

Figure 4: Deviations in total expenditures, Croatian regions (average values, in %)



Note: Positive deviation means that the plan was higher than execution.
 Negative deviation means that the plan was lower than execution.

Source: Authors

Total expenditures are the sum of current and capital expenditures. If we look at Graph 4, deviations in total expenditures show a similar pattern to current expenditures. The City of Zagreb underestimated their total expenditures during 2017-2019, but in 2020 and 2021, they slightly overestimated total expenditures. In contrast, on average, LGUs in the other three regions during the observed period plan much higher total expenditures than they actually spend (overestimation). In 2021 Pannonian Croatia LGUs, on average, have the highest positive budget deviation in total expenditures – the difference between planned and executed total expenditures is the highest (they overestimated total expenditures by around 30%).

The above comparative analysis of the four Croatian regions shows that Pannonian Croatia LGUs are among the lowest performers in 2017 to 2020, while in 2021 are far and away the lowest. They exhibit low/lowest BT and high/highest budget deviations in current/capital/total expenditures on average (planning much higher expenditures than they actually spend). The most significant budget deviations arise from planning much higher capital expenditures than are actually executed.

The second goal of this paper is to determine possible clusters within Pannonian Croatia LGUs. Cluster analysis is conducted for all 191 Pannonian Croatian LGUs (39 cities and 152 municipalities) during 2017-2021. In order to perform cluster analysis, eight additional variables are introduced: grants per capita (pc), budget balance pc, population, income pc, unemployment rate, fiscal capacity pc, Herfindahl index and women councillors (Table 1).

Table 1: Definitions of variables

Variable	Description	Source
Deviations in current expenditures (DCUREXP)	Budget deviations in current expenditures, calculated as (current expenditures plan – current expenditures actual)/current expenditures plan (in %).	Authors’ calculations. Data on actual expenditures from the Ministry of Finance (MOF) and planned expenditures from Enacted budgets on the official websites of LGUs.
Deviations in capital	Budget deviations in expenditures for acquisition of nonfinancial assets (capital expenditures),	Authors’ calculations. Data on actual expenditures from the

Variable	Description	Source
expenditures (DCAPEXP)	calculated as (expenditures plan – expenditures actual)/expenditures plan (in %).	MOF and planned expenditures from Enacted budgets on the official websites of LGUs.
Deviations in total expenditures (DTOTEXP)	Budget deviations in total expenditures, calculated as (total expenditures plan – total expenditures actual)/total expenditures plan (in %). Total expenditures are calculated as the sum of current expenditures and expenditures for the acquisition of nonfinancial assets.	Authors' calculations. Data on actual expenditures from the MOF and planned expenditures from Enacted budgets on the official websites of LGUs.
OLBI	BT is measured annually as the online availability of five key local budget documents (budget proposal, enacted budget, year-end report, mid-year report and citizens' guide), ranging from 0 to 5.	Bronić et al. (2022)
Grants pc (GRAN)	All revenues from grants are calculated pc. Values in the HRK.	MOF (2022)
Budget balance pc (BBAL)	The budget balance is defined as total revenues minus total expenditures, calculated pc. If the budget balance is positive, it is called a surplus; if it is negative, it is called a deficit. Values in the HRK.	MOF (2022)
Population (POP)	The number of inhabitants in the LGU. The estimate of the number of inhabitants from 2017-2020. The number of inhabitants from the Census of the population 2021.	Croatian Bureau of Statistics - CBS (2022)
Income pc (INC)	Total average annual resident income for each LGU, calculated pc. The total amount of income earned during one tax period (calendar year) by taxpayers, natural persons with residence or habitual residence in LGU, including tradesmen's profits. Values in HRK.	Ministry of Regional Development and EU Funds (2022)
Unemployment rate (UNEMP)	The average unemployment rate of LGUs is calculated as the ratio of the number of unemployed to the sum of all employed persons in LGUs (in %).	Ministry of Regional Development and EU Funds (2022)
Fiscal capacity pc (FISCAP)	Fiscal capacity, i.e. LGUs' own revenues, calculated as operating revenues minus all grants, calculated pc. Values in the HRK.	MOF (2022)
Herfindahl index (HERF)	The measure of fragmentation of the city/municipality councils is calculated using the following equation: $\sum_{i=1}^n \frac{S_i^2}{S^2}$ <p>S_i is the number of party councillors in the city/municipality council, S is the total number of seats in the city/municipality council. Values ranging from 0 to 1 (all council members belong to the mayor's party).</p>	Authors' calculations. Data from State Electoral Commission (2022)
Women councillors (WOMEN)	Share of females in city/municipality councils; local elections 2017 and 2021 (in %).	State Electoral Commission (2022)

Note: All variables refer to average values for the 2017-2021 period.

4. Cluster Analysis of Pannonian Croatia

Before performing cluster analysis, it is necessary to obtain standardised values of the variables by using the z-score normalisation of the original values of the variables, applying the following calculation for each variable:

$$z = \frac{x - \mu}{\sigma},$$

where z is the standardised value, x is the original value of the variable, μ is the mean value, and σ is the standard deviation.

This paper applies K-means clustering in which n observations are divided into k clusters, and each observation belongs to the cluster with the closest mean. Cluster analysis was conducted for all LGUs of Pannonian Croatia – cities and municipalities.

Table 2: Descriptive statistics (average values, 2017-2021)

	DCUREXP	DCAPEXP	DTOTEXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
Min.	-76.3	-146.7	-37.6	1	308	1,382	368	15,262	4.4	1,733	0.2	0.0
Median	8.5	50.1	29.2	4.2	1,603	-37	2,590	26,938	13.3	2,441	0.4	25.5
Mean	6.3	43.0	28.5	4.0	1,786	-69	5,561	27,313	15.0	2,652	0.4	25.2
Max.	38.6	85.6	67.8	5	7,052	775	100,687	41,421	37.0	9,322	1.0	51.3

Source: Authors

The descriptive statistics in Table 2 show significant differences in the values of the variables used (especially in grants pc, budget balance pc, population, income pc and fiscal capacity pc).

Pannonian Croatia's LGU with the lowest average level of BT is the municipality Punitovci (1). There are 31 LGUs with the highest average level of BT (5): 9 cities and 22 municipalities. In the observed period, Gradina had the highest average negative budget deviation (spending more than planned) for current expenditures (-76.3%) and total expenditures (-37.6%), while Draž had the highest negative budget deviation for capital expenditures (-146.7%). On the other hand, on average, the highest positive budget deviation (spending less than planned) for current expenditures was seen in Štefanje (38.6%), for capital expenditures in Martinska Ves (85.6%) and for total expenditures Podravska Moslavina (67.8%). Preferably, LGUs should have budget deviations around zero, i.e. planned and actual expenditures are similar, which is on average the case for Tovarnik for current expenditures (0.7%), Sirač for capital expenditures (0.6%) and Sisak for total expenditures (0.8%).

The cluster analysis results are presented in tables 3, 4 and 5. The cluster mean values reported indicate a relationship between budget deviations in expenditures and BT for all of Pannonian Croatia's LGUs. The main conclusion is that LGUs with lower BT exhibit higher budget deviations, i.e. they overestimate their expenditures.

Table 3: Cluster means – deviations in current expenditures

	DCUREXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
1	15.3 (0.55)	3.2 (-0.83)	2,096 (0.35)	56 (0.42)	1,980 (-0.35)	22,812 (-0.89)	20.4 (0.91)	2,421 (-0.28)	0.52 (0.59)	28.0 (0.28)
2	1.4 (-0.30)	3.8 (-0.17)	1,758 (-0.03)	-196 (-0.42)	3,141 (-0.23)	25,998 (-0.26)	15.2 (0.03)	2,686 (0.04)	0.40 (-0.30)	17.0 (-0.79)
3	5.3 (-0.06)	4.6 (0.64)	1,626 (-0.18)	-32 (0.12)	9,836 (0.41)	31,164 (0.77)	11.6 (-0.57)	2,760 (0.13)	0.43 (-0.08)	30.7 (0.53)

Note: Standardised values are in parentheses.

Source: Authors

The cluster analysis results for deviations in current expenditures (Table 3) show three clusters, and the variables used in clustering contribute differently. The most significant contribution is from *income pc* ranging from -0.89 (cluster 1) to 0.77 (cluster 3), while the least significant is from *fiscal capacity pc* ranging from -0.28 (cluster 1) to 0.13 (cluster 3). We single out the cluster of the “worst performers”:

- Cluster 1: LGUs with the lowest BT (OLBI) and highest deviations in current expenditures. These LGUs receive the highest grants per capita and conversely have the lowest fiscal capacity. They record a positive budget surplus indicating that their budget planning is, to a certain extent, determined by external circumstances (e.g. central government allocations) since the underlying economic foundations – they exhibit the lowest average values of income per capita and population together with highest levels of unemployment – are the weakest. Political variables point to an absolute majority of the ruling party in the local council (Herfindahl index above 0.5) indicating a politically monolithic ecosystem.

Confirming the conclusions reached by Ríos et al. (2018), we report that LGU’s with lower BT tend to overestimate their current expenditures. Needing to be taken into account in a comparison of these results are the size of Spanish municipalities, economic strength and the level of fiscal decentralisation but since these are the first empirical results for any Croatian LGU’s the possibilities for comparative analysis are rather limited.

Table 4: Cluster means – deviations in capital expenditures

	DCAPEXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
1	50.0 (0.22)	3.2 (-0.81)	1,955 (0.19)	-9 (0.20)	2,294 (-0.32)	23,266 (-0.80)	19.90 (0.83)	2,396 (-0.31)	0.49 (0.35)	24.7 (-0.05)
2	19.6 (-0.72)	4.1 (0.18)	2,629 (0.94)	-268 (-0.66)	4,678 (-0.09)	29,472 (0.43)	14.93 (-0.01)	3,462 (0.98)	0.45 (0.03)	25.7 (0.05)
3	47.2 (0.13)	4.5 (0.53)	1,320 (-0.52)	-34 (0.12)	8,340 (0.27)	29,441 (0.42)	11.34 (-0.61)	2,515 (-0.17)	0.41 (-0.27)	25.4 (0.02)

Note: Standardised values are in parentheses.

Source: Authors

The cluster analysis results for deviations in capital expenditures (Table 4) show again three clusters, and the variables used in clustering contribute differently. The most significant contribution is given by *grants pc* ranging from -0.52 (cluster 3) to 0.94 (cluster 2), while the least significant is given by *women councillors* ranging from -0.05 (cluster 1) to 0.05 (cluster 2). We single out the cluster of the “worst performers”:

- Cluster 1: LGUs with the lowest BT (OLBI) exhibit the highest deviations in capital expenditures. Additional similarities with the “worst performers” cluster in current expenditures include the lowest average values of income per capita, population and fiscal

capacity together with the highest levels of unemployment and monolithic political landscape within local councils. Unlike the “worst performers” cluster in current expenditures they accomplish middle grants per capita and lowest % of woman councillors.

One immediately recognises the higher level of deviations in capital than in current expenditures. Out of the possible theoretical reasons that are behind this – e.g. fiscal centralisation, political leadership, economic foundations and transparency – existing empirical research tends to suggest political accountability (Ott et al., 2019; World Bank, 2022). A region that is decoupling should record negative deviations in capital expenditures according to both beta and gamma convergence criteria, but that is unfortunately not the case. That is even more surprising if one takes into consideration that voters are not fiscal conservatives, i.e. they reward increases in expenditures in election years (Mačkić, 2021). This surely opens an interesting research avenue, one however, that is outside the scope of this paper.

Table 5: Cluster means – deviations in total expenditures

	DTOTEXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
1	35.2 (0.36)	3.0 (-1.07)	2,016 (0.26)	54 (0.41)	2,090 (-0.34)	22,897 (-0.88)	21.3 (1.07)	2,453 (-0.24)	0.49 (0.36)	25.9 (0.07)
2	29.3 (0.04)	4.2 (0.28)	1,627 (-0.18)	-181 (-0.37)	3,176 (-0.23)	26,337 (-0.19)	13.1 (-0.32)	2,313 (-0.41)	0.45 (0.05)	21.8 (-0.33)
3	21.5 (-0.37)	4.4 (0.46)	1,844 (0.07)	3 (0.24)	12,221 (0.65)	32,554 (1.04)	12.7 (-0.39)	3,353 (0.85)	0.39 (-0.38)	29.9 (0.46)

Note: Standardised values are in parentheses.

Source: Authors

The cluster analysis results for deviations in total expenditures (Table 5) show again three clusters², and the variables used in clustering contribute differently. The most significant contribution is given by *income pc* ranging from -0.88 (cluster 1) to 1.04 (cluster 3), while the least significant is given by *grants pc* ranging from -0.18 (cluster 2) to 0.26 (cluster 1). We single out the cluster of the “worst performers”:

- Cluster 1: LGUs with the lowest BT (OLBI) exhibit the highest deviations in total expenditures. Additional similarities with the “worst performers” cluster in current expenditures include the lowest income per capita and population together with the highest grants per capita and unemployment rate. They also share a politically monolithic ecosystem characterised by an absolute majority of the ruling party in the local council (Herfindahl index above 0.5). They record a positive budget surplus indicating that their budget planning is, to a certain extent, determined by external circumstances (e.g. central government allocations).

The results confirm our stated hypothesis on the negative correlation between BT and budget credibility. On average, LGUs with lower LBT record higher budget deviations in current/capital/total expenditures for all of Pannonian Croatia’s LGUs. Additionally, Pannonian Croatia’s LGUs on average record the highest grants per capita and unemployment rate. They accomplish budget surplus and have an absolute majority of the ruling party in the local council (Herfindahl index above 0.5). On the other side, on average they record the lowest population, income per capita and fiscal capacity per capita.

² The most interesting results for cluster 1 the “worst performers” are in Appendix. Due to insufficient space, all other tables with cluster results are available upon request.

5. Conclusion

This paper presents the first empirical examination of budget credibility on the local level in Pannonian Croatia. It analyses the influence of LBT on budget credibility, i.e. the effect of LBT on the LGUs' budget deviations in expenditures in Pannonian Croatia. Conducting a cluster analysis on all Pannonian Croatian LGUs during 2017-2021, the paper confirmed a negative correlation between LBT and budget deviations in current/capital/total expenditures.

Both research goals have been met. Firstly, based on a descriptive analysis, Pannonian Croatia LGUs were among the lowest performers in the 2017-2020 period, while in 2021, they were the lowest performers compared to the remaining three NUTS 2 regions (Adriatic and Northern Croatia and the City of Zagreb). They exhibit low/lowest BT and high/highest budget deviations in current/capital/total expenditures (planning much higher expenditures than later spending). The most significant budget deviations arise from planning much higher capital expenditures than later executing. Second, based on cluster analysis, on average Pannonian Croatia LGUs with low levels of LBT have higher deviations in current, capital and total expenditures. This cluster shares some similarities regardless of whether current, capital or total expenditures are under examination. These include the lowest average values of income per capita, population and fiscal capacity per capita together with the highest unemployment rate levels, grants per capita and monolithic political landscape within local councils (Herfindahl index).

Future studies may conduct cluster analysis for all Croatia's LGUs or use different methods, e.g. panel analysis, where cluster analysis may serve as a first step in the inference analysis. Although BT certainly explains part of the budget credibility story, in order to see the full picture, future research should widen the scope of the variables used. For example, including public participation in budget processes on the local level might be promising. On the political side, one could include the ideology and longevity of the incumbents as well as political conformity between central/county and local levels (especially in the case of capital expenditures). Also, a clear sticks & carrots strategy by the Ministry of Finance (better legal regulations and control of LGUs budget credibility, as well as introducing penalties when low LGUs budget credibility cannot be reasonably explained) could change incumbents' preferences during the budgetary planning and executing stages. More inclusive empirical analysis might yield policy recommendations beneficial to economic agents both in terms of credibility and of achieving desired economic policy outcomes.

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APPENDIX

Table A1: Cluster 1 “worst performers”, Pannonian LGUs by deviations in total expenditures

LGU	m/c	DTOTEXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
Berek	m	61.2	4	2,690	-192	1,168	23,270	16.7	2,763	0.87	38.0
Borovo	m	29.1	3	1,238	4	4,029	22,377	14.2	2,031	0.68	24.3
Bošnjaci	m	30.9	3	1,372	31	3,099	22,685	19.4	2,449	0.41	26.2
Darda	m	44.2	2	3,478	80	5,830	27,428	22.2	2,353	0.31	14.0
Donja Motičina	m	47.8	2	1,327	-37	1,398	26,589	17.9	2,384	0.67	28.5
Donji Kukuruzari	m	21.0	3	3,117	136	1,097	21,490	30.4	2,257	0.40	19.0
Dragalić	m	57.3	3	1,780	190	1,065	25,692	19.6	3,060	0.42	26.3
Drenovci	m	35.6	3	2,042	-97	3,976	21,585	23.1	3,644	0.53	19.1
Drenje	m	13.1	2	2,342	-175	2,228	21,231	21.0	1,946	0.32	16.9
Dvor	m	34.8	3	1,644	33	3,412	22,919	27.0	2,760	0.30	19.1
Đulovac	m	33.3	5	1,838	-113	2,791	17,474	29.6	2,038	0.33	10.7
Gorjani	m	53.1	2	3,041	-540	1,362	25,193	15.7	2,180	0.49	9.5
Gornji Bogičevci	m	34.3	2	1,207	-43	1,483	20,712	29.6	2,388	0.39	37.1
Gradina	m	-37.6	3	1,337	531	2,985	21,647	22.0	2,373	0.39	19.8
Gradište	m	41.7	3	1,363	151	2,270	24,682	15.1	2,137	0.91	29.2
Gunja	m	54.1	4	1,497	258	2,805	17,779	27.3	2,029	0.40	15.2
Gvozd	m	44.8	3	1,765	74	1,953	22,387	37.0	2,623	0.51	32.3
Hrvatska Dubica	m	44.5	4	2,295	621	1,497	23,975	27.0	2,729	0.30	46.0
Hrvatska Kostajnica	c	37.7	3	2,807	419	1,983	32,479	13.0	2,940	0.48	29.9
Jagodnjak	m	9.6	4	4,260	-165	1,632	21,116	33.7	2,432	0.43	34.0
Krnjak	m	36.8	3	2,545	37	1,423	20,979	14.0	2,608	0.39	35.8
Levanjska Varoš	m	31.4	4	3,398	-664	947	16,802	28.1	2,376	0.50	40.0
Majur	m	33.2	2	3,629	-390	831	29,132	20.7	2,334	0.36	46.4
Markušica	m	48.7	2	1,804	302	2,000	19,388	18.4	2,041	1.00	46.2
Negoslavci	m	23.2	2	1,933	141	1,163	24,226	13.1	1,848	1.00	45.3
Okučani	m	52.4	3	1,699	300	2,421	20,609	32.2	2,651	0.48	24.6
Petlovac	m	16.3	4	1,336	-82	1,909	26,556	26.5	2,781	0.43	9.5
Plaški	m	37.2	3	2,018	-201	1,638	21,394	22.8	2,023	0.33	35.8
Podgorač	m	42.2	3	1,517	-20	2,518	21,207	25.9	2,424	0.49	26.7
Podravska Moslavina		67.8		3,344	203	974	23,769	16.1	2,168	0.52	13.9
Popovac	m	22.2	4	1,945	132	1,467	27,012	27.1	3,688	0.54	19.0
Privlaka	m	48.3	3	1,657	267	2,351	26,290	12.0	2,583	0.60	12.3
Punitovci	m	45.7	1	3,349	-256	1,603	25,067	17.6	2,020	0.51	15.6
Semeljci	m	34.7	4	1,769	378	3,801	25,774	18.5	2,136	0.55	43.6
Severin	m	30.5	2	1,859	-55	754	25,983	13.3	2,599	0.39	5.0
Slavonski Šamac	m	43.8	4	1,654	158	1,662	19,160	13.3	1,892	0.43	50.3
Sopje	m	27.3	4	2,022	106	1,969	23,710	20.7	2,800	0.45	17.3
Staro Petrovo Selo	m	36.0	3	1,249	-73	4,230	25,384	17.3	2,180	0.40	23.7
Šodolovci	m	27.7	5	1,945	106	1,279	24,672	22.9	2,532	0.49	28.5
Štitar	m	49.1	4	1,388	301	1,608	21,409	16.4	1,997	0.36	33.5
Trnava	m	51.3	4	2,267	-243	1,319	22,943	19.0	1,922	0.38	44.4
Trpinja	m	11.8	3	1,141	94	4,494	21,180	14.9	2,493	0.41	18.6

LGU	m/c	DTOTEXP	OLBI	GRAN	BBAL	POP	INC	UNEMP	FISCAP	HERF	WOMEN
Viljevo	m	43.4	2	1,798	-50	1,734	20,834	18.3	2,706	0.54	16.8
Voćin	m	13.3	3	1,453	492	2,006	17,056	32.5	3,312	0.62	0.0
Vrbje	m	50.2	2	925	177	1,749	21,351	24.2	2,112	0.51	22.2
Zdenci	m	1.4	2	896	-32	1,514	26,290	18.8	3,583	0.40	16.8
Zrinski Topolovac	m	35.9	1	1,779	234	783	15,262	15.8	1,967	0.45	32.4

Note: c = city, m = municipality.

Source: Authors

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IMPACT OF BLUE ECONOMY ON ECONOMIC GROWTH AND UNEMPLOYMENT IN EUROPEAN UNION COUNTRIES

ABSTRACT

Blue economy provides enormous potential on economic growth and development. The fundamental idea of the blue economy is that wealth ocean ecosystems are more productive and represent a basis for sustainable economy. European Commission represents "Blue growth" through an initiative to harness the untapped potential of European oceans, seas and coast to encourage employment and economic growth with defining six sectors which contribute to the blue economy (extraction and commercialisation of marine living resources, marine extraction of oil and natural gas, maritime transport, port activities, shipbuilding and coastal tourism). This paper examines two sectors of blue economy, marine living resources and coastal tourism on economic growth and unemployment. Specifically, the impact of fisheries, aquaculture, tourist overnight in coastal destinations, number of facilities that provide accommodation in coastal destinations and the impact of tourism consumption on economic growth and unemployment is investigated on the sample of 20 European Union countries. Methodological framework of the research is fixed effect panel analysis in time period from 2008 to 2021. The results show strong and significant impact of aquaculture sector, overnight stays in coastal areas, accommodations and tourist consumption on economic growth and unemployment. Besides that, the paper additionally gives a comprehensive literature review as well as review of previous research. Contribution of the paper is also reflected in providing bases in further development of research into the potential and opportunities arising from the blue economy.

Key words: *Blue economy, Economic growth, Unemployment, European Union.*

1. Introduction

The concept of the blue economy is understood through a wide range of activities aimed at the sustainability of coastal and marine resources. When looking at the concept of the blue economy, it is necessary to evaluate it in terms of sustainability and management, i.e. to look at it through the concept of sustainable management. Thus, the literature finds sustainable development of the seas and oceans, the blue or marine environment, and the sea-land interface. The blue economy concept emphasized resource conservation, and the basic idea is that healthy ocean ecosystems are more productive and form the basis for sustainable ocean-based economies, i.e. ensuring the long-term efficiency of use and capacity of the world's ecosystem. Due to the decline of the natural capital of the seas, oceans and coasts, and their internationally recognized importance, consensus and understanding have been established for the re-evaluation of the value of the seas, oceans and coasts along with active fortification of strategies for the development of a sustainable blue economy (EC, 2018).

Several approaches to the definition of the blue economy can be found in the literature. Through the first 2012 EC's Annual Report, the term "Blue Growth" appears through the initiative of

exploiting the untapped potentials of European oceans, seas, and coasts for jobs and the economy (EC, 2012). According to the 2017 EC's Blue Growth Strategy report, progress is reviewed within the six sectors contributing to the blue economy, namely extraction and commercialisation of marine living resources, offshore oil and natural gas extraction, maritime transport, port activities, shipbuilding and coastal tourism. In addition, the Blue Growth Strategy has identified five highly innovative and high-potential sectors, namely blue energy (wind and ocean energy at sea), aquaculture, coastal and maritime tourism and blue biotechnology and seabed mining (EC, 2017). Although the definitions of the blue economy can be found in the literature, often the term “blue economy” is identified with the term “blue growth.” However, considering the involvement of various segments, defining the blue economy can be delineated into several clear concepts. The UN has defined the blue economy as an ocean economy aimed at improving human well-being and social equality, with a significant reduction of environmental risks and ecological scarcity (UN, 2014); the World Bank definition implies sustainable use of marine resources for economic growth, improved livelihoods and jobs while preserving the health of the ocean’s ecosystem (WB, 2017); The European Commission defines the blue economy through all economic activities related to oceans, seas and coasts, and covers a wide range of interconnected, already established and emerging sectors (EC, 2018). Furthermore, Eikeset et al. (2018) clarify that the concept of blue growth derives its roots from the concept of sustainable development, which defined the environment/resource dimension in 1972, the economic dimension in 1992, the social dimension in 2002 and the green growth dimension in 2012; the European Commission indicates in 2019 that blue growth can be seen through the support of sustainable growth in the sea and the maritime sector as a whole and as a maritime contribution to achieving the objectives of the strategy for smart, sustainable and inclusive growth (EC, 2019); Barbesgaard (2018) points out that blue growth involves a wide range of actors, goes beyond fisheries and extends to the dynamics of managing all marine and coastal resources. Caswell et al. (2019) indicate that the concept of blue growth aims to promote the growth of ocean economies with the holistic management of marine socio-economic systems. So, in summary, the blue economy is a macroeconomic model, and blue growth is a long-term strategy to support sustainable growth through a macroeconomic model (Mayén Cañavate, et al., 2019).

This paper deals with the research of two sectors of the blue economy, extraction and commercialisation of marine living resources and coastal tourism on the example of 20 European Union countries over a period of 14 years (2008-2021) and their impact on gross domestic product (GDP) and unemployment. Although the paper is designed to provide insights into the significance and impact of certain sectors, i.e. to examine determinants of the blue economy, rather than long-term sustainability of the blue economy in selected countries through the concept of blue growth, and given the relatively small number of papers on the specific topic of this paper, the paper brings several implications: (i) the identification of activities in the movement of the pattern predicted by the blue economy concept and identification of the existence of a connection between selected sectors of the blue economy with economic growth and unemployment; (ii) based on literature reviews, other empirical research in these two sectors of the blue economy are singled out and placed in the context of this research, which provides additional spaces for supplementation; (iii) through empirical research, the work deepens the existing knowledge of the blue economy; (iv) the paper will provide guidelines for further research and further promotion of the empirical directions of this very important issue. The rest of the paper is organized as follows. The second section provides an overview of literature and research in two selected sectors of the blue economy. The third part explains the data and methodology. In the fourth part, the results of the research are presented and placed in the context of other research. The fifth part is the conclusion.

2. Literature review

Literature review was splitted in several parts. First, we presented the literature related to the blue economy and the concept of sustainability, as well as the potential pitfalls and drivers of the blue economy; in the second part is literature that deals with the connection between tourism and economic growth followed by the literature about connection between tourism and sustainable growth; then the connection between fishing and the blue economy; furthermore, the researchs conducted in the interdependence of the fishing and tourism sectors with blue growth is presented.; and finally a comprehensive survey that examined historical economic growth in various states and alignment with today's blue growth goals.

On the EU-28 countries sample, an analysis of the causal link between greenhouse gas emissions, the blue economy (measured by gross value added) and economic growth in the period between 2009 and 2018 was carried out. The results suggest that the blue economy has a negative effect on greenhouse gas emissions, stressing that economic activity from the sea sector is not only based on traditional sources that release harmful gases, but also on renewable energy sources and that EU countries are taking important steps in preserving the environment; additionally, through the negative impact on the emissions of greenhouse gases, emphasis was placed on the assumption of sustainable development of the economy (Bădîrcea et al., 2021). Kyvelou et al. (2019), based on a questionnaire conducted with representatives of 24 development companies at local and regional levels, identified the most important factors that can be drivers of blue growth in the example of Greece. As the most important advantages for blue growth, respondents listed cultural heritage, island and coastal character and local development programs; the main weaknesses are visible in the lack of tax incentives, the lack of knowledge and information of local entrepreneurs, the lack of information on progress in the area of blue growth and the lack of support from local institutions to promote blue growth. Opportunities from the external environment are support for entrepreneurship, employment, new jobs, and the improvement of local income, while the main risks in blue growth planning are visible in overfishing, institutional fragmentation, inefficient sea management, the possibility of a marine environment crisis, conflicts between different ways of using the sea resulting in the depletion or degradation of natural cultural resources and biodiversity, and the risk of a low level of knowledge. In the case of Pakistan, Aijaz et al. (2021), by surveying 129 maritime officials and civil servants, identify four obstacles to blue growth (avoidance of uncertainty, functional strategic focus, prioritization of short-term growth over long-term orientation and weak innovation). The study also found that sustainability for the company, a balanced approach between stakeholders and the commitment of the top management are the main drivers toward blue growth.

As regards the link between tourism and economic growth, which has been subject to a larger volume of research, there is a clear consensus in the literature on the positive impact of tourism on economic growth. The tourism-led growth hypothesis (TLGH) originally proposed by Balaguer, Cantavella-Jorda (2002) focused on tourism as having a strong economic potential and provided a further basis for studies and theoretical approaches for a deeper understanding of the role of tourism in the economy. The development of tourism implies a higher cash flow, an increase in income and employment, securing financial resources for further reproduction and an increase in local development and production; through its activities, tourism also encourages other sectors to develop, such as agriculture, food supply or accommodation, creating a new cycle of production, income inflow, employment and tax payments (Surugiu, et al., 2013; Du et al., 2014; Holik, 2016; Rasool, et al., 2021).

Research on the impact of tourism on sustainable development or the blue economy is less numerous. Thus, on the sample of 45 African countries in the period 1995-2019, the connection between the inclusive growth of tourism (measured by GDP per person employed) and tourism (measured by the number of arrivals, tourist consumption and income from tourism) is explored. The results of the research confirm the weaker but still significant impact of the mentioned three tourism indicators on the creation and increase of tourism growth, with the final conclusion on the existence of potential inclusive growth (Adeniyi et al., 2021). Sharpley (2021), discussing the concept of sustainable development in which tourism is firmly embedded, presents the opposition between the need for tourism and environmental policy, emphasizing that excessive tourism outweighs concern for the environment. The author sets the thesis of the so-called “benign dictatorship”, according to which it is necessary to reduce tourist travel consumption in order to achieve the sustainability of tourism and sustainable development. An additional understanding of the impact of tourism on economic growth and thus on sustainability potential is provided by the research of Sahni et al. (2022), which indicates a non-linear relationship between tourism and economic growth on the example of 58 countries in the period from 2003 to 2017. The confirmed non-linearity of the relationship was determined by a unique threshold above which there is no confirmation of the relationship or connection, which indicates that returns from tourism occur within specific points of the distribution of economic growth, beyond which the contribution of tourism to growth is completely absent. Ultimately, the results suggest that gains stemming from tourism occur at low levels of tourism specialization, implying that neutral gains from tourism can be expected as well. Zhang & Zhang (2021) on the example of 30 Chinese provinces in the period from 2000 to 2017 using Granger causality, confirm the long-term relationship between tourism, economic growth, energy consumption and CO₂ emissions and their mutual impact, as well as the short-term bidirectional causality between GDP and tourism and the one-way causality from energy consumption to other analysed variables. The increase in tourism revenue causes an increase in CO₂ emissions, energy consumption and GDP. The implications of research on tourism development in the national and regional context are reflected in the need for additional infrastructure projects and in the development of national strategy for poverty reduction, focusing on promoting the low-carbon transformation of Chinese tourism and the use of renewable energy in the industry.

In relation to fisheries and economic growth, Jawaid et al. (2019) demonstrate a significantly positive long-term relationship between fisheries and economic growth on the example of Pakistan between 1974 and 2013, without short-term effects. The causal link between these variables was confirmed through the impulse response function. On the other hand, however, the authors pointed out that the easy availability of fish catches and the lucrative business of fish catching and selling resulted in catching fish faster than it could be reproduced or restored, giving recommendations for the protection of the fishing flock by developing controlled fisheries or aquaculture. Inversely, Oad, et al. (2022), using the VECM model, indicate that in Pakistan in the period from 1960 to 2017, there was no long-term link between fish exports and economic development, but only short-term. Finally, however, the strong influence of fisheries on economic growth in the observed period has been proven, concluding that there is no sustainable fisheries policy in Pakistan. In the case of Nigeria, the VAR method was used to examine the connection between fisheries production and economic growth in the period from 1970 to 2011 (Oyakhilomen, 2013). The results showed that fishery production does not cause higher economic growth; fisheries do not have a significant impact on growth, which is attributed to low domestic fishery production. The implications of the conducted research show the untapped economic potential of fishing production, and the untapped effects resulting from fishing production, e.g., ensuring the employment of actors involved in the fishing value chain,

reducing poverty and fostering sustainable growth in Nigeria, are additionally highlighted. Using the example of Bangladesh, Hussain et al. (2018) highlight fisheries and coastal aquaculture as strong sectors that ensure the potential to provide food and livelihoods while respecting ecological standards with sustainable employment and production of high-value species for international export markets. However, a strong emphasis is placed on the governance structure, stressing that without it, resource depletion, biodiversity loss and the final loss of ecological function can occur. Alharti & Hanif (2020) investigate the impact of fisheries, aquaculture and the aquaculture, agriculture and forestry sectors on economic growth in SAARC countries. The results confirm the positive and significant impact of all three sectors on the generation of economic growth, leading to the conclusion that there are potentials and resources for infrastructural growth, the creation of new jobs, helping to eradicate poverty through the social inclusion of residents of coastal areas.

In the case of Indonesia (East Nusa Tenggara), which has rich natural resources supported by spacious waters, coastal areas and strategic geographical conditions, have shown that the concept of the blue economy significantly helps in creating sustainable economic development. Mahardianingtyas et al. (2018) investigate the importance of the fisheries and tourism sectors in the regional economy, i.e., their contribution to GDP. Through multiplier effects, the authors have proved that the fisheries sector and other tourism-related services are oscillating; the increase in added value in the fisheries sector is around 1,000 Indonesian rupiahs (IDR), which increases the added value of the non-base sector (the sector of the supply of goods and services needed by the society within economic) for 22,007 IDR, and the increase in value in the other services sector (art, entertainment and recreation) by 1,000 IDR increases the added value of the non-base sector by 62,225 IDR, which explicitly indicates that the development of the fisheries and tourism sectors within the framework of the blue economy concept can provide a large multiplier effect in the short term, with the prospects that revenues from tourism and fisheries increase the revenue of the non-base sector through increased investment, employment, income and consumption. However, the ultimate conclusion is that significant improvements will be needed to boost the economic development of tourism and fisheries since they are significantly below the importance of the agricultural sector. Waheed (2022) analyses the factors of blue growth (fisheries, maritime trade and maritime tourism) and their impact on sustainable economic growth measured by GDP and the impact on sustainable environment measured by CO₂ emission in Saudi Arabia in the period from 1995 to 2020. The results his research suggest that the fishing industry has no influence on economic growth, while the maritime trade and tourism contribute to sustainable development and growth, and generate additional income. On the other hand, these positive contributions contradictorily represent an obstacle to a sustainable environment, as the research proves their positive impact on carbon emission.

Caswell et al. (2020) raised the issue of the connection between past management strategies and today's results under the blue growth objectives, which they investigated in a sample of 20 cases (14 cases of fisheries and six cases of aquaculture) from 13 countries with a median annual period of 80 years. The analysis identified four different blue growth curves, three of which show unbalanced growth with the priority of economic growth relative to social equality and sustainability, while one curve (with a total of four cases) maintained balanced growth with social fairness and ecological sustainability. In the last case, the authors present risk factors in terms of intermittent growth (external and/or internal political and/or economic events) and growth potential factors (innovations, new markets) and conclude that growth contributing factors prevailed against risk factors and remained stable and balanced, establishing additional momentum and maintaining growth sustainability. The recommendations referred to in the

article concern the involvement of stakeholders in decision-making; for example, when harmonizing regulations, further underlining the trade-offs between groups and objectives can make it difficult to achieve all the objectives of blue growth at the same time, and in this sense, it is necessary to identify trade-offs and differences among stakeholders in order to support blue growth, and there is also a need for adaptability and holistic governance supported by monitoring and scientific research and a long-term perspective.

3. Data and method

3.1. Data

This study included 20 European Union member states, namely: Belgium, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Poland, Portugal, Slovenia, Spain and Sweden over a period of 14 years from 2008 to 2021.

Based on the assumption defined by the European Commission that the blue economy has a positive impact on economic growth and employment (EC, 2012), certain sectors of the blue economy were included in the analysis i.e. the impact of the fisheries sector (measured through capture fisheries in tons), the aquaculture sector (measured through aquaculture production in tons), the number of overnight stays by tourists in the coastal areas of the countries (total number), the number of accommodation facilities in the coastal areas of the countries (total number) and through the tourist consumption indicator. So, it is about researching two sectors of the blue economy: the extraction and commercialisation of marine living resources and coastal tourism.

The starting function of the blue economy consisting of two sectors according to the EC (2018) methodology is as follows:

$$BE = f(\text{marine living resources (MLR)}, \text{coastal tourism (CT)})$$

$$MLR = f(\text{fisheries}, \text{aquaculture})$$

$$CT = f(\text{overnight stays}, \text{accommodation facilities}, \text{consumption})$$

The control variables in the model were selected based on theoretical assumptions and determinants of economic growth. Starting from the neoclassical growth model that considers human capital in the framework of education, the number of students attending the study was included as a control variable in the model (Barro, 2003, Romer, 1986). As stated in Levine, Zervos (1993), countries with more students enrolled in education grow faster than countries with lower enrolment rates. The included government spending on education controls additional investment in human capital that should increase GDP. Consensus about the long-term connection between investing in human capital and economic growth is manifested in the economic effects, e.g. the rate of returns, the increase in productivity and efficiency (e.g. Dewan, Hussein, 2001; Chirwa, Odhiambo, 2016). On the other hand, education can also serve as a driver in the fight against poverty and unemployment, the government spending on education can also be seen as an investment, and in addition, government spending is the main instrument in the conduct of public policies (fight against unemployment) (Grimaccia, Lima, 2013; Pirim et al., 2014). The descriptive statistic of the data is in the appendix. The data was downloaded from the World Bank (WDI), the Eurostat database and described in the appendix.

3.2. Method

Therefore, since we have a time series including 20 EU countries and a time period of 14 years (2008-2021), panel analysis was used. The panel analysis combines the time and spatial dimensions, thereby providing more observations and generalization of results on a larger set of samples. However, certain shortcomings such as missing values or, for example, the correlation between units should be considered when using panel analysis.

In our analysis, we used the panel fixed effect for several reasons. First, we assumed that dependent variables are influenced by the unobservable factors contained in the error term. It is assumed that there were certain specificities for each country, time-invariant, which influence the independent variables in each country. The FE panel model, suppresses the assumption of the omitted variable, providing unbiased research results. In fixed-effect models, variations in units are contained within units (countries), thereby reducing unobserved heterogeneity and the omitted variable problem, additional including group-specific constants (fixed effects) suppresses unobserved group heterogeneity (Brüderl, Ludwig, 2017:327).

The starting analytical framework was

$$y_{it} = \alpha_i + \beta'X_{it} + \gamma'Z_{it} + u_{it} \quad (1)$$

Where y_{it} represented the dependent variable (ln_GDP or ln_unemployment), X_{it} is a vector of independent variables of the blue economy (ln aquaculture, ln fisheries, ln tourist overnight/coastal, ln accommodation/coastal, ln consumption) Z_{it} is a vector of control variables (ln education, ln government expenditures), α_i is the intercept for each unit or the unobserved effect that included time-invariant individual heterogeneity, u_{it} is the error term, $i = 1, \dots, 20$, $t = 2008, \dots, 2021$.

The final form of the equation was as follows:

$$\ln GDP_{it} = \alpha_i + \beta_1 \ln aquaculture_{it} + \beta_2 \ln fisheries_{it} + \beta_3 \ln overnights_coastal + \beta_4 \ln accommodation_coastal_{it} + \beta_5 \ln consumption_{it} + \gamma'Z_{it} + u_{it} \quad (2)$$

$$\ln unemployment_{it} = \alpha_i + \beta_1 \ln aquaculture_{it} + \beta_2 \ln fisheries_{it} + \beta_3 \ln overnights_coastal + \beta_4 \ln accommodation_coastal_{it} + \beta_5 \ln consumption_{it} + \gamma'Z_{it} + u_{it} \quad (3)$$

4. Results

The first step in the analysis was to obtain diagnostics of the model. Although it was decided to use the FE method, a formal examination of the fit of the model was carried out using the Hausman test. By performing the Hausman test with the null hypothesis, the RE model is suitable and with the chi2 result (68.04) and p value (0.0000) for the model with the dependent variable GDP and with the chi2 result (405.44) and p value (0.0000) for the model with the dependent variable unemployment, we did not accept the null hypothesis. The results of the Hausman test were performed for our basic estimation, which includes all independent and all

control variables since that is our basic and most important estimation. Furthermore, the F test for testing the significance of fixed effects in the models with $p=0.0000$ supported the use of the FE model. Finally, the Breusch Pagan test for serial correlation was performed and with a p value of 0.0000, robust estimates were used in all models.

Table 1 lists the test results that support the significant role of the blue economy sectors on economic growth. As assumed, both sectors showed significant impacts on economic growth. However, the diversification of influence is being singled out. The sector of extraction and commercialisation of marine living resources divided into aquaculture and fisheries indicates that the impact on growth derives exclusively from the impact of aquaculture. The significant impact obtained from aquaculture further open up research spaces in the form of, for example, research into the long-term sustainability of the sector, the interdependence of aquaculture with other sectors of the blue economy, the potential crowding out of other activities, the adequately upgraded existing infrastructure, etc. Likewise, parts of the coastal tourism sector did not show an equal impact. The positive impact on growth is shown by tourist consumption as well as overnight stays by tourists in the coastal parts of countries. Tourist consumption represented a significant impulse to growth either through direct tourist consumption of domestic products or through an indirect connection in the reproduction chain, through tax collection and the government budget, as well as through the personal income of the domestic population, which is supported by previous research (Gökovali, Bahar, 2006; Seghir et al., 2015; Stylianou, 2017). The implications mostly stemmed from the impact of overnight stays by tourists in coastal destinations, which is shown to be stable in the assessment models, which implies the high importance of tourism in generating the growth rate and supports the TLG-hypothesis, but raised issues of spatial overcrowding during the season, negative tourism externalities and long-term sustainability without reasonable urban planning and strategically planned development guidelines. However, the negative impact is shown by the number of accommodation units. Possible indirect and direct negative impacts resulting from the increase in the number of accommodation facilities in coastal parts of countries on GDP could be discussed through the following: (i) the creation of excessive pressure on the environment and infrastructure, (ii) the conversion of existing buildings and their new recording and (iii) illegal construction. Although, when looking at the model without covariates, accommodation on the coast has a positive sign, leaving this question open for further discussion, especially from the aspect of connection with other parts of the economy.

Table 1: FE model results /dependent variable ln_GDP/

	I MODEL	II MODEL
Ln_aquaculture	0.1470***	0.0914**
Ln_fisheries	-0.0606	-0.0018
Ln_overnight/coastal	0.0485*	0,4656***
Ln_accommodation/coastal	0.0230	-0.1496**
Ln_consumption	0.0618*	0.0331*
covariates	NO	YES
R²	0.29	0.63
Opservation	169	116
P value (F test)	0,0000	0,0006

Notes: *** represents significance at 1% of critical value, ** at 5% and * at 10%. Estimation contained robust standard errors.

Source: Author

Table 2 shows the results of the model of assessment of the blue economy sector on the unemployment. Here too, the results of only one part of the independent variables were observed. Aquaculture had a negative impact on unemployment, which is in line with the forecast. Increasing production in the aquaculture sector leads to a decrease in unemployment. The aquaculture sector, as a fast-growing sector, has some negative implications, such as environmental degradation, blocked access to coastal resources, land-use change, and, among others, decline in fishing and food insecurity (Primavera, 2016), which also opens a future discussion on the interconnectedness between aquaculture and fisheries. Furthermore, a significant connection appeared in the number of overnight stays in coastal destinations, where a higher number of overnight stays reduced unemployment. The contribution is further highlighted by the fact that the number of overnights exclusively in coastal areas is considered, which excludes a larger number of other overnight stays by tourists in the selected countries included in the analysis. These results open further discussions about the sustainability of coastal areas, which occupy a smaller share of the total surface area of the countries and absorb a sufficient number of tourists who are able to stimulate and significantly influence unemployment. The importance is also shown in the number of accommodation units in coastal areas that had a significant positive contribution, which requires further processing because it implies increased inactivity and, more importantly, opens up the issue of macroeconomic consequences.

Table 2: Results of the FE model /dependent variable unemployment/

	I MODEL	II MODEL
Ln aquaculture	-0.3545	-0.2254***
Ln fisheries	0.2495	-0.0129
Ln overnight/coastal	-0.0639	-1.4117***
Ln accommodation /coastal	-0.3717	0,1720**
Ln consumption	-1.1903**	-0.0732
covariates	NO	YES
R²	0.33	0,69
Opservation	169	116
P value (F test)	0,0002	0,0000

Notes: *** represents significance at 1% of critical value, ** at 5% and * at 10%. Estimation contained robust standard errors.

Source: Author

5. Conclusion

The blue economy, understood through the broad prism of activities aimed at the maintenance and preservation of natural resources, natural capital and environmental health in the last 20 years, has become increasingly important. The World Bank, the United Nations, the European Union and many others defined the blue economy, providing guidelines for its promotion with active engagement in its development. In general, the blue economy, based on the concept of sustainability, deals with the promotion of sustainable economies through several sectors closely linked to the oceans, seas and coasts. Previous research in this field singles out certain guidelines, models and observes the blue economy through a wide range of activities and actors involved in these activities. However, on the one hand, the EC report (2012) indicates that the blue economy has a significant impact on economic growth and employment, while on the other hand, specific empirical research in this segment is still missing.

This paper considered two sectors of the blue economy, extraction and commercialisation of marine living resources (fisheries and aquaculture) and coastal tourism (tourist overnight stays

in coastal destinations, number of accommodation units in coastal destinations, tourist consumption) and assessed their contributions to growth and unemployment. The research was conducted on a sample of 20 EU member states in the period from 2008 to 2021 using panel modelling. The results indicated a significant impact of aquaculture, the number of tourist overnight stays at coastal destinations, the number of accommodation units in coastal areas, and the impact of tourist consumption on GDP. The impact of aquaculture, number of tourist overnights, and overnight stays on unemployment was also shown to be significant. These results provided further understanding of the impact of the blue economy sector on macroeconomic aggregates and require further processing with more detailed empirical issues. Also, this research covered two important macroeconomic phenomena (GDP and employment) in the context of the blue economy and it is one of the first studies which was conducted on these macroeconomic aggregates based on EU countries, thus creating a basis for further research and future upgrades. However, several limitations should be noted. First, a static analysis was performed, which does not provide information on dynamics and long-term relationships, as well as information on causality. Then, the research considered GDP and unemployment, which does not give us sufficiently reliable information about microeconomic entities and their behaviour during cyclical periods to which the tourism sector is significantly exposed. This research cannot specify the answer about the sectoral contribution, nor can it give a precise answer which part of the aggregate demand bears the biggest brunt of influence of the blue economic sectors. Considering the results of the research, it would certainly be interesting for further research to highlight the issues of the connection between fisheries and aquaculture, and the potential crowding out of other sectors; it would be good to open the issues of coastal-spatial overcrowding during the season and the potential of spatial absorption of tourist arrivals, it could be important to elaborate and assess the consequences of increased accommodation capacities in macroeconomic terms as well as the issues of the involvement of actors (private and public) in promoting and achieving the goals of the blue economy and the issues of multiplicative macroeconomic effects resulting from the blue economy.

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Appendix

Table 1: Descriptive statistic

Variable	Observation	Mean	St. dev.	Min	Max
Ln_GDP	280	26.05	1.67	22.81	28.91
Ln_unemployment	280	2.13	0.46	1.16	3.32
Ln_aquaculture	260	9.52	1.99	3.78	12.78
Ln_fisheries	260	11.35	2.02	5.57	13.87
Ln_overnight_coastal	197	16.88	1.47	14.14	19.71
Ln_accomodation_coastal	172	7.85	1.77	5.06	11.69
Ln_consumption	195	21.86	1.69	18.44	25.46
Ln_school	159	12.70	1.47	9.43	15.00
Ln_gov_ex	255	2.44	0.19	1.96	2.93

Source: Author

Table 2: Variables

Variable*	Description	Source	Accessed
Ln_GDP	Gross domestic product, GDP in 2015 US\$	World bank, WDI**	14.2.2023.
Ln_unemployment	Unemployment rates by sex, age and citizenship (%)	EUROSTAT***	8.2.2023.
Ln_fisheries	Capture fisheries production measures the volume of fish catches landed by a country for all commercial, industrial, recreational and subsistence purposes.	The World Bank, WDI	14.2.2023.
Ln_aquaculture	Aquaculture is understood to mean the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Aquaculture production specifically refers to output from aquaculture activities, which are designated for final harvest for consumption.	The World Bank, WDI	14.2.2023.
Ln_overnight_coastal	Nights spent at tourist accommodation establishments by coastal	EUROSTAT	7.2.2023.
Ln_accommodation_coastal	Number of establishments, bedrooms and bed-places by coastal	EUROSTAT	7.2.2023.
Ln_consumption	Expenditure by duration, purpose and main destination of the trip, total excluding durables and valuable goods, personal reasons, from 1 to 3 nights	EUROSTAT	9.2.2023.
Ln_school	Students enrolled in tertiary education by education level, programme orientation, sex, type of institution and intensity of participation	The World Bank, WDI	8.2.2023.
Ln_gov_exp	Government expenditure on education, total (% of government expenditure)	The World Bank, WDI	8.2.2023.

Notes: *Ln expresses natural logarithm, and all variable are expressed in ln terms

**<https://databank.worldbank.org/source/world-development-indicators>,

***<https://ec.europa.eu/eurostat/web/main/data/database>.

Source: Author

A scientific paper

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ECONOMIC IMPACTS OF MIGRATION TRENDS WITHIN THE EUROPEAN UNION – THE CHALLENGE OF INTEGRATION

ABSTRACT

Recent armed conflict in Ukraine initiated one of Europe's most intense migration trends in this century, although human beings are socially made to move, especially due to life threatening circumstances. Europe used to be mainly a continent of emigration, more than a continent of immigration, due to political, religious, economic and other social reasons in the past, but in this century the migration patterns have definitely shifted. Despite humanitarian point of view, the arrival of such multitude of people in Europe is raising another question: in what ways such trend, no matter the reasons why, is affecting the EU economy as a whole? Indeed, the expression 'as a whole' is very relevant because each of Member states (MS) is dealing with the crisis in a very different manner and according to different reasons which are presented in this paper. Using historical and comparative analytical methods the migration trends, as well as its impact on the EU economy are examined. Throughout the paper, a global study of EU economy is conducted, and some examples of MS will be examined. The migration patterns are economically beneficial for the EU, if the impacts are considered in a long run, in order to get the full aftermath of refugees' integration into the EU. To use the full economic potential of those new inhabitants MS's should work more on a common policy how to deal with immigrants. Moreover, all existing social and economic needs of all segments of domestic population should be considered and satisfied first, to ensure the wider acceptance and integration of those foreign nationals and to avoid extremist behavior, since then they will not be perceived as a threat to their standard of living.

Key words: *EU immigration, migration, refugees, social inclusion, integration policy.*

1. Introduction

“Ukraine war sets off Europe's fastest migration in decades” (New York Times, 2022). This was one of the New York Times' headlines right after the beginning of the Russian “Special Military Operation” in Ukraine. Indeed, this article was written on the 1st of March 2022, less than 5 days after Russia invaded Ukraine. Nevertheless, people already fled Ukraine, creating, what the author called, “the most intense wave of European migration since at least the

1990s” (New York Times, 2022). Indeed, in a way, people have always migrated, historically from Europe to America, or from India and the South of China to the Islands of the Indian and Pacific Ocean; human beings are socially made to move (McKeown, 2007). Europe also used to be mainly a continent of emigration, more than a continent of immigration, due to political, economic, social reasons or, for example, as a response to the two World Wars. As Brickner points out “In the era of European colonialism, the voluntary migration of Europeans to Africa, Asia, Oceania, and the Americas would export the Westphalian state system on a global level” (Brickner, 2013). Migration is a global phenomenon. There is hardly country in the world left that does not register either national or internal migration movements. Migrant is, “in the *global context*, a person who is outside the territory of the State of which they are nationals or citizens and who has resided in a foreign country for more than one year irrespective of the causes, voluntary or involuntary, and the means, regular or irregular, used to migrate” (EMN, 2023). Prime movements of the migration are usually economic in nature, where person try to find better life abroad as an economic migrant - “A person who leaves their country of origin purely for economic reasons that are not in any way related to the refugee definition, in order to seek material improvements in their livelihood.” (EMN, 2023). But these are not the only reasons why people migrate, using even the same migrant routes as a mixed migration e.g. “Complex migratory population movement including refugees, asylum seekers, economic migrants and other types of migrants as opposed to migratory population movements that consist entirely of one category of migrants. (EMN, 2023). Refugee is, “in the global context, either a person who, owing to a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership of a particular social group, is outside the country of nationality and is unable or, owing to such fear, is unwilling to avail themselves of the protection of that country, or a stateless person, who, being outside of the country of former habitual residence for the same reasons as mentioned before, is unable or, owing to such fear, unwilling to return to it” (EMN, 2023). Based on the current trends we in the future decades we can expect growing number of immigrants, especially from Africa (and Asia) trying to reach EU, on one hand due to higher general safety and standard of living - economic and political rights and on the other due to numerous present and possible future armed conflicts and natural and man-made disasters. To realize those broadly set group of existential goals, migrants are driven by financial considerations and existing networks, which are mainly concentrated to a small number of Northwest EU member states (Grievesson, Landesmann & Mara, 2021) with the highest general standard of living and protection of human rights as well as, until recently, the most immigration friendly public policies, which are now in the process of reevaluation and change, especially in Denmark, Norway and Sweden (Hagelund, 2020; Peroni 2021).

From 2005, the European Commission wanted to create a common set of rules regarding economic migrants who were the most important concern at that time. A policy plan on legal migration was adopted in December 2005 (Communication, 2005) and also led to different directives such as the Eurodac Regulation, the Temporary Protection Directive, the Reception of Asylum Seekers Directive, the Dublin Regulation replacing the 1990 Dublin Convention, the Qualification Directive and the Asylum Procedures Directive. Then, in 2009, the Stockholm Programme was adopted and this one was mainly related to migration issues (The Stockholm Programme, 2009). In 2015, after the major crisis, a European Agenda on Migration (Communication 2015) was created so as to find the appropriate answers to this unprecedented crisis as fast as possible, especially because the European framework was still very disparate. An update was made in 2017 in order to give more attention to the status of refugees in general within the EU i.e. to get a real uniform framework for all the MS. Due to urgent humanitarian situation related to the large number of immigrants that arrived in Italy

and Greece whose geographic position in the Mediterranean Sea, close to North of Africa and Turkey where the main migrant routes over land and sea are entering EU, The Council Decision (EU) 2015/1601 of 22 September 2015 establishing provisional measures in the area of international protection for the benefit of Italy and Greece was brought to support them in better coping with that emergency situation through the relocation of refugees in the next two years, the relocation of asylum seekers being a subject of political conflict between the MS, especially in the light of reform of Dublin convention. Finally, in 2020, the New Pact on Migration and Asylum was taking these points into account in order to provide ‘humane and effective’ answers to the current issues regarding refugees and migrants. However, what can be observed here is that each MS is facing the crisis differently. As a matter of fact, the Commission took this point into consideration while writing the New Pact on Migration: “situation which affects different Member States in different ways” (New Pact on Migration and Asylum, 2020). That is the reason why it was quite challenging for MS to find an agreement regarding the proposals on this topic. Nevertheless, it is very important to find a way to deal with it because according to the UNHCR, “in 2021, more than 114,000 people risked their lives trying to reach Europe by sea” (UNHCR, Refugee Crisis in Europe). As a consequence, it represents a huge amount of people on the verge of risking everything, even their lives, in the hope of reaching the European continent. However, despite this social and humanitarian point of view, the arrival of that many people in Europe is raising another question: in what ways the huge flow of migration since few years, no matter the reasons why, is affecting the EU economy as a whole?

2. The downside: Adverse effects of immigration for EU economy

For most of the MS it was very difficult to cope with the 2015 crisis, especially because lots of people came unexpectedly in a moment already full of economic concerns following the most serious financial crisis at least since the 1930s. As a consequence, the EU as whole was particularly struggling to keep its head above water but for some other countries that were already suffering from this crisis, the migrants’ arrival was the straw that breaks the camel’s back. In fact, it was the case for Greece which is a strategic geographic point of arrival for migrants and was facing an unprecedented financial crisis since 2008. As a result, some studies were made so as to show how damaging the migrations were for the EU economy, at the first place mainly on short-term macroeconomic impact.

2.1. The short-term macroeconomic impacts of immigration

The presence of immigrants in the country will obviously lead to some additional initial public spending regarding the accommodation, education, health issues or food. Public views differently privileged and unprivileged workers, with later usually being viewed in a negative way (Bauder, 2011, p. 41). The International Monetary Fund concluded that the amount would correspond approximately to 0,1 percent of the GDP of EU countries (IMF, 2016). This does not seem as big as the society could expect. Indeed, the most important fact here is that the public opinion in general does not understand that short-term investment in migrants can lead to huge advantages for their home countries. Wider public opinion is not completely wrong in the sense that migrants’ arrival is fundamentally harmful for public spending for the reasons we stated, but also because it will increase unemployment in short-term. This basic concepts of threat perception theories are not uncommon (Stephan et al., 1998; Pardos-Prado, 2011; Gorodzeisky, 2006). Indeed, there will be more labor force on the market, and this can be especially detrimental to unskilled native labor force as explained by L. Neal who is using

historical example of West Germany and Italy labor force before reunification. Indeed, the migrants or refugees are usually ‘low-skilled’ workers and therefore, this can be harmful to low-skilled native workers, depending on the relative weight of skilled vs. unskilled native and immigrant labor force (Neal, 2007). However, the concern regarding employment is not the only one, according to the public opinion. The issue of wages is also a huge point since in short-term their arrival can have “some impact on the lower end wages” (Poddar, 2016) and influencing their purchasing power considerably. Balibar for example calls immigrants today’s proletarians (Balibar, 2004, p. 50), since they, especially if unskilled, practically seldom enjoy any legal protection and can be easily exploited.

Another problem that is not making the EU economy better off is that MS still did not find a real consensus about migrations. All the MS are not bearing the same burden. It corresponds to what S. Poddar called “domestic political reasons” (Poddar, 2016). Indeed, immigration is and will always remain a key challenge for which MS want to keep an eye on. In fact, this very sensitive issue needs political choices that MSs are still not ready to uniformize, especially because they want to keep sovereignty over this delicate matter (Poddar, 2016). In fact, by studying some MS, we can totally understand why a legal framework cannot be achieved. For instance, Germany and Sweden are countries which are economically stable and very well-developed, so they are in position of offering asylum to many refugees and that is exactly what they did after the 2015 crisis. On the contrary, the United Kingdom or Poland and Hungary, for example, were also not in a bad economic position but decided, for political reasons, not to accept as many refugees. Finally, the last but not least important situation is the one of Greece and Italy which, due to their geographical position, had to cope with the immense burden of welcoming refugees despite their own economic problems. As a consequence, all these cases bring to the impossibility of having a coordinated framework and lead, unfortunately, to a bad short-term answer to the crisis which impact EU economy as a whole.

2.2. The long-term impacts

As shown by a German study regarding migration and the long-term fiscal sustainability done by Gerrit Manthei and Bernd Raffelhüschen (2018) the long-term study is very important especially regarding migration movements and the full spectrum of its economic impacts. For this, they took into account the demographic situation and future projections and explain that financial sustainability can only be established if all future revenues are greater or equal to all future expenditures over an infinite time span and this can only be achieved if the demographic structure is in equilibrium, namely if there is no excess ageing in the population and a low number of births in the country (Manthei & Raffelhüsche, 2018). According to these two scholars, the phenomenon of population aging will be observed in Germany without the immigration. However, they are emphasizing the fact that it will help Germany to deal with contribution to elderly workers but are also explaining in what ways the qualification of the migrant workers will be important since “a below-average qualification structure can worsen the ratio of contribution payments to transfer payments” (Manthei, 2020).

“For decades, Sweden has enjoyed a reputation for devising an inclusive migrant-incorporation policy, recognizing the ethnically diverse character of its society, and granting voting rights to foreign citizens (Schierup & Castles, 2011). This changed to restrictive immigration policy from 2008 onwards, but nonetheless Sweden welcomed a lot of Syrian refugees after the war started in that country (Sager, 2015). A similar conclusion was made in Sweden. Per Lundbord authored a study based especially on ‘Refugees’ Employment

Integration in Sweden' (Lundbord, 2013). It showed that the arrival of immigrants on the labor market was much more disadvantageous for native blue collared workers and lead to a bigger unemployment rate. Moreover, the study also showed that migrants from culturally distant areas have a higher unemployment rate than those from Eastern Europe and Latin America, but what is interesting is that at short-term this can be explained by the fact that migrants need adaptation time, especially on the labor market due to some language and cultural gaps. This study is also showing that this employment gap in reality "never closes fully not even for those with a very long residence in Sweden" (Lundbord, 2013).

The same problem can be seen in France even though the problem is mainly based on how French people are seeing immigrants long-term, which led to various discriminations against them and, as a consequence, a bad integration on the labor market, so as a result it is completely harmful for the economy. A survey shows how reluctance is growing in France: "More is being done for immigrants than for the French" was supported by 64% of respondents (compared to 40% in 2006)" (IFOP, 2020) even though another survey also shows that immigrants and their immediate descendants now represent more than a fifth of the French population (INSEE, 2020). Park points out that French asylum system is in need of rehauling since "The institutionalized processes of refugee policy, bureaucracy and limited access to legal rights increases the vulnerable conditions of working asylum seekers in France. While enduring challenging working conditions and limited legal rights, working asylum seekers are highly visible, leading to police controls and possible incarceration. Applying for asylum is perceived as an alternative to obtaining a temporary residence permit, but it remains the least desirable strategy for many economically desperate asylum seekers as it prohibits them from legally accessing the local labor market" (Park, 2015, p. 139).

3. The favorable aspects of immigration: How the successive immigration is beneficial for EU's economy

The term "migration hump" was coined in the 1990s. Migration hump is based on the observation that growing per capita income in developing countries is typically accompanied by higher rates of emigration. "The explanation is that increasing per capita income is often related to improved levels of education and training, but that those benefiting from this find only limited but that those benefiting from this find only limited opportunities for appropriate employment in their local labor markets. Rising demands and expectations subsequently make migration a more attractive proposition" (Angenendt et al, 2017). Regarding the EU, one concern was raised which is actually very relevant for our topic. According to the European Commission, "without migration, the European population would have shrunk by half a million in 2019, given that 4,2 million children were born, and 4,7 million people died in the EU" (European Commission, 2012). This data means that the birth rate was lower than the mortality rate which will, on the long-term, be totally detrimental for EU economy. Due to its present and projected shrinking demographic pyramid (EUROSTAT, 2019) the EU needs labour force, especially skilled and educated workers in more industrially developed MS, as well as unskilled labour force, for low paid and for domestic population mostly undesirable jobs, in developed and developing parts of EU? The freedom of movement for EU citizens already exists but the problem remains in the fact that majority of human capital is moving from poorer to richer member states, thus deepening the gap between those two groups of MS and making bigger the need for non-EU migrants, even in those poorer MS, such as Croatia, since they are losing their productive workers (IUS-INFO, 2018). As a result, the intra-EU mobility is still inadequate to solve the demographic problems of EU MS. That is the reason

why economists such as S. Poddar are claiming that the best option for EU economy is to let the migrants arrive in order to solve issues such as aging workforce and low birth rate (Poddar, 2016). Apart from the labor force that migrants could constitute, one of the arguments in favor of immigration is that these individuals will represent a new market for goods and services within the EU. Indeed, this point was mainly raised by European Economic and Financial Affairs Commissioner Pierre Moscovici (CNBC, 2016) emphasizing the fact that the refugee crisis is going to force governments to ramp up public expenditure thus lifting European growth and all MS which are welcoming refugees will see their GDP increase, thanks to the arrival of new consumers on the EU's market. The assertion is then to invest into refugees, even though this will have negative short-term economic consequences, since these investments will help to improve or even perfect their skills, in order to obtain a 'return on investment' which can only be beneficial since these people will contribute to their wellbeing as well as to social security. The goal is to develop their full potential on the labor market to achieve the economic growth due to migrants' efficiency. According to the head of BDI industry federation (Richter, 2015), to accelerate the process of integration of immigrants will lead to a bigger working population which is in fact a need in Germany, because of, as in the rest of EU, incredibly low birth rate and the ageing population. As a matter of fact, Germany which had welcomed various migrants and tried to integrate them as much as possible is the perfect example to show nowadays which impacts the immigration had. That is the reason why, Germany wanted an integration of migrants as fast as possible into German society and especially on the labor market. The authors present 3 cases which are: an optimistic scenario, a baseline, and a pessimistic scenario. In the first two years, and for each case, the integration of migrants is very costly and is about a loss of -0.5 points of the total GDP. However, on the long-term, even in the pessimistic scenario i.e., the worst case which will take a bit more time, the percent of GDP from the integration of migrants is still increasing and is above 0. As a consequence, taking into consideration all the scenarios, the immigration in Germany will lead to a GDP which will go from minimum 0.4 to 1.4% (Fratzscher & Junker, 2015). Likewise, the study conducted by Kancs & Lecca (2017) suggest that, "...although the refugee integration (e.g., by the providing language and professional training) is costly for the public budget, in the medium- to long-run, the socio-economic and fiscal benefits may significantly outweigh the short-run refugee integration costs. Depending on the integration policy scenario and policy financing method, the annual long-run GDP effect would be 0.2% to 1.4% above the baseline growth, and the full repayment of the integration policy investment (positive net present value) would be achieved after 9 to 19 years. ... sustainably integrated refugees have the potential to play an important role in addressing Europe's alarming demographic trends, filling vacancies with specific skill requirements, improving the ratio of economically active to those who are inactive, a ratio that is falling in many MS, and boosting jobs and growth in the EU" (Kancs & Lecca, 2017, p. 38). Also, one of the most important issue related to successful integration of immigrants is the acquisition of the official language of the host county which one of the most common prerequisite of any-level-integration (Ajduković et al., 2019). A study on the fiscal impact of immigration in OECD countries since the mid- 2000s showed that "immigrants contribute more to taxes and social transfers than they receive in benefits and services" (OECD 2921). Therefore, contrary to public opinion in France, immigrants are contributing more than receiving social assistance. Moreover, among the negative aspects of immigration it was stated that migrants and refugees could have bad effects on the employment of native workers in the short-term and then this argument was counterbalanced by the fact that this would have beneficial long-term impacts. However, what should be mentioned is that it was proved that most of the time the migrants/refugees were less skilled than the native workers (or at least had skills in areas different from those expected in the host country), which makes them

complementary to the domestic work force (Neal, 2007). The end result, as the study on the Danish labor market showed, is that migrants' integration on the labor market still have bad impact on low-skilled native workers (Foged & Perri, 2015). However, the study also highlights the fact that while migrants have been able to take the place of some low-skilled natives in the labor market, this has also pushed them to do less intensive work, to acquire more skills or even to complete more education that will give them higher salaries (Foged & Perri, 2015). In fact, that is exactly what Javier Ortega and Gregory Verdugo found out in a Working Paper for *La Banque de France*: "a 10% increase in immigration increases native wages by 3%" (Ortega & Verdugo, 2011). To put it in a nutshell, it seems that even though the integration of migrants implies, indisputably, some economic consequences on EU economy at a short-term, it is important to keep in mind that there are much more positive impacts after all and especially in the long run. The same as with long term investments; investing to make greater profits over a longer period of time is actually a bet on the future. For refugees the same reasoning can be applied, a short-term investment on them i.e. giving them accommodation, food and especially education or trainings, can lead to greater profits for the country namely a better GDP, a lower unemployment rate, a better contribution to the welfare expenditure in the future for the expenses of ageing native population.

4. The remaining challenges

4.1. General issues of migrants' integration

Since intra-EU mobility is not enough to answer the demographic problems within the EU, some scholars and policymakers like Peri (2020), OECD (2003) and OECD (2014) were proposing an idea that has crossed many people's minds: to relax the rules on the immigration of non-EU citizens, thus filling job vacancies and improving the demographic structure at the same time. Nevertheless, this option was never really considered on the EU level, leaving it to each MS to decide for itself. Germany, for example, chose not to follow the Dublin Regulation which determines that the country which is responsible for examining and handling an asylum application is normally the one where the asylum seeker first entered Europe (European Commission, 2020). In fact, this was a supportive decision in order to relieve the MS that were strategic point for migrants' entry such as Greece or Italy for example. Therefore, it shows that this migrant crisis, and all the ones that will follow, cannot be resolved if the solidarity is not achieved. Indeed, even though this paper is dealing with the economic perspective, what should not be forgotten is that this crisis is about millions of people fleeing a country which raises the humanitarian point of view. Therefore, sometimes some states also differentiate between migrants and refugees, i.e., as explained at the beginning, migrants who migrate for economic reasons, namely, to have a better life and better economic opportunities, and those whose physical existence is threaten in their home countries, although the mixed migration inflows should be taken into consideration. The International Organization for Migration defines the term *mixed movements* (*mixed migration* or *mixed flows*) as: "A movement in which a number of people are travelling together, generally in an irregular manner, using the same routes and means of transport, but for different reasons" (IOM, 2019). Refugees usually receive more help and acceptance than economic migrants. However, it should be noted that all these individuals are human beings, who sometimes, although they come only for economic reasons, are also forced to migrate because they are deeply poor: migration has a cultural and social impact that goes well beyond its economic dimension (EIB, 2016).

In the recent years, a lot of European countries experienced a phenomenon of rising popularity of various political parties with strong anti-immigration sentiment. The terrorist attacks in this century, have led to a profound fear for the European citizens and the European countries even decided to reintroduce temporary border controls on the internal borders despite the Schengen acquis (2000), since in the Article 2§2 of the Schengen Acquis there exists a safeguard clause for such extraordinary situations. However, what really matters here is that an apprehension appeared within the EU concerning immigration in relation with terrorist attacks. The study by (Grievesson, Landesmann & Mara, 2021) shows that EU citizens support providing asylum for refugees and have become more sympathetic since 2000, but, at the same time, their attitudes towards irregular migration have hardened; they want immigration to be well managed and migrants to integrate. Finally, EU citizens care where migrants are coming from and give much less popular support for migration from outside the EU. For instance, Germany accepted lots of migrants and the AfD party won in popularity in the following elections. It was the same for Greece where supporters of the Golden Dawn party rose in an impressive way after the crisis of 2015. Moreover, in France and in Belgium, huge terrorist attacks in 2015 and 2016 led most of the people to think that, in a certain way, liberal immigration policies from the past created the opportunity for those attacks. Deeply touched, the population unfortunately started to discriminate negatively against migrants resulting in discrimination at work and as a consequence had an impact on migrants' integration on labor market that impacted the economy itself. Furthermore, on the issue of pensions, a problem was raised in France regarding immigration: "Immigration can be a palliative to the ageing of the working population. However, it cannot be 'the' solution to the problem of financing pensions" (L'Institut Montaigne, 2012). Indeed, as *L'Institut Montaigne* demonstrated here, immigrants are also getting older and as a consequence, the number of immigrants is even too small to get a permanent good ratio between working and retired people: "calculated twenty years ago that France would need more than two million immigrants per year between 2025 and 2050" (L'Institut Montaigne, 2012). However, then the question is how to make immigrants more integrated in France when it is getting harder and harder to get asylum in France and when the society is extremely reluctant to welcome them?

4.2. A future economic impact of Ukrainian refugees?

Regarding Ukrainian refugees, it seems that everything that had been said before, now will apply i.e. the short-term investment to help these people to survive and then to get integrated. "Another important factor in the integration of Ukrainian refugees is their demographic composition. ... Among the beneficiaries of temporary protection, 33% are children under the age of 18, 60.4% are persons between the ages of 18 and 64, and 6.6% are persons above 65 years. In terms of gender, 34.2% are male and 65.8% are female. However, it should be noted that around half of male refugees are children under the age of 18. Therefore, when considering the working-age population between the ages of 18 and 64, only 26.7% are male and 73.3% are female. ... Taking into account these considerations, an updated estimate on the impact of Ukrainian refugees to the euro area labour market would account for an increase in the labour force by around 0.3% to 0.5% in 2022." (ECB, 2023). Also, possible double standards in reception and rights of Ukrainian refugees which might also influence the economic structure of reception countries – e.g. temporary protection allows for direct inclusion to the labour market, should be avoided, and refugees should be treated and greeted with the same status in all MS. Only after that, positive long-term returns could be expected to appear. However, in the same way as during the 2015 migration crisis, this new wave is appearing in a delicate context for EU economy. In fact, the EU is already trying to deal with

economic issues coming from the unexpected COVID-19 crisis and have now to deal with the arrival of millions of refugees from Ukraine which raises huge economic concerns: “Resettling the refugees fleeing Ukraine could cost \$30 billion in the first year alone, and the permanent integration of millions of people would reshape Europe’s economy” (New York Times, 2022A). Indeed, more than 8 million refugees have been recorded across Europe (UNHCR, 2023) and the EU is giving humanitarian support: “President von der Leyen has announced, €500 million from the EU budget is being directed to deal with the tragic humanitarian consequences of the war, both inside Ukraine and beyond. Of this, €90 million in humanitarian aid including €85 million for Ukraine and €5 million for Moldova, is already under way to provide food, as well as water, healthcare, shelter, and to help cover the basic needs of the most vulnerable” (European Commission, 2022). To this humanitarian help additional support for border management and protection for those fleeing and support for reception capacity will also be added (European Commission, 2022). As a result, all of this will considerably impact EU budget and EU economy. In that context, Poland stands as a good example of accepting and integrating refugees from Ukraine since 2014 till the present day. Although sometimes criticized by certain EU MS for its non-acceptance of Syrian and other non-European refugees, Poland opened its doors to Ukrainian war refugees since Russian annexation of Crimea and is active in helping and successfully integrating them in all aspects of life till the present day. Certainly, geographic proximity and cultural as well as religious similarities are helping that process.

5. Conclusion

What could be concluded here is that in a wide sense, the immigration is economically quite beneficial for the EU as a whole, if the impacts are considered in a long run, in order to get the full aftermath of immigrants’ integration into the EU. Nevertheless, it also seems that each crisis is quite different because how are refugees getting dispersed around Europe and especially why the refugees are coming in the EU will depend on a lot of factors and then impact in the economy. It appears that until all the MS totally agree on how to deal with immigration, a single answer cannot be really found regarding how advantageous migrants can be for the EU economy, but in all situations the right of each MS to choose without any pressure and prejudice whom to grant asylum or accept as economic immigrant should be upheld. Moreover, another issue that needs to be taken into account is that this paper is mainly relying on quite recent trends i.e., on the last most important one which was in 2015. However, it means that just seven years have passed since this major immigration, allowing only a relatively recent look back at the impacts of a major immigration crisis within the European Union as it has modernized and developed in recent years. Also, to achieve wider acceptance of immigrants, especially among the host country population, who are already using and expect more from social security, it is important to help them more, to solve their existential problems first, e.g. build adequate housing for the people in Banija and Kordun region of Croatia that lost their homes in earthquake 2 years ago, as well as to consider other pressing social and economic needs, before we give and invest more in to the needs of immigrants from abroad, to avoid social unrest, violence and extremism towards immigrants, who will not be perceived as a threats to economic rights and livelihoods of host country population. To improve their ability to integrate successfully and to reduce the initial costs future *economic immigrants* should be allowed and invited into the host country through transparent and well-defined procedure (e.g. integration as a three-way process; Garcés-Mascreñas & Penninx, 2016), based on their value as human capital, the host country’s needs for certain professionals as well as clean criminal record. Whenever it is possible, the whole

process should be accomplished in cooperation with the authorities from their country of origin and mainly finished there, so they will arrive with their legal status already resolved and guaranteed employment. All other sorts of immigration, especially those caused by wars and natural disasters, should be based on international humanitarian laws and lasting as long as refugees' existence is endangered in their countries of origin.

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A scientific paper

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THE EFFECT OF COVID-19 ON THE FINANCIAL PERFORMANCE OF THE HOSPITALITY INDUSTRY: THE CASE OF CROATIA

ABSTRACT

Although tourism has faced numerous crises through history, the Covid-19 pandemic caused unprecedented consequences on a global scale. Governments across the world introduced protective measures such as community lockdowns, social distancing, stay-at-home orders, travel and mobility restrictions. Introduced measures led to a collapse in international and domestic travel, caused an unprecedented fall in tourism demand and a temporary closure of the hospitality businesses worldwide. Consequently, the hospitality industry faced massive financial losses and went into crisis mode which confronted this industry with tremendous challenges. This research is focused on the hospitality industry in Croatia where tourism has a significant direct impact on GDP growth and a significant contribution to national exports. Prior to the pandemic, tourism in Croatia had been steadily rising. The number of tourist arrivals and overnight stays reached the highest levels in 2019, followed by a steep decline in 2020 due to the pandemic. The main goal of this study is to analyse the effect of the Covid-19 pandemic on the hospitality industry in Croatia where we focus on the analysis of financial indicators. Financial indicators selected for the analysis cover several categories: current liquidity ratio, solvency ratios, activity ratio – total turnover ratio, and profitability ratios – return on assets and profit margin i.e. return on sales. Moreover, return on assets will be measured by the Du Pont system of indicators in order to gain a clearer insight into the business performance. Selected financial indicators related to the hospitality industry in Croatia are evaluated for the 2019-2021 period, before and during the Covid-19 pandemic. The analysis encompasses hotel companies that are categorized into “Accommodation and food service activities”, class I 55.10 – “Hotels and similar accommodation” by the National Classification of Activities.

Key words: *Financial performance, Tourism, Hospitality industry, Hotel companies, Covid-19.*

1. Introduction

COVID-19 was designated a pandemic by the World Health Organization (WHO) on March 11, 2020 and has turned the world upside down. Governments around the globe implemented COVID-19 protocols and restrictions on business and community activities in order to avoid the transmission of the virus. The world was in a lockdown. The pandemic hit all industries and the hospitality industry is one of the most affected due to work performance related constraints, resulting in temporarily closed hotels and mass unemployment in the sector (Sakurai &

Chughtai, 2020, Gossling, 2021, in Hogberg, 2021). Consequently, these restrictions had negative impact on the economy (Hubert et al., 2022, Tuma et al., 2021, in Malukah, 2021). In the Republic of Croatia (Croatia), after five years of positive economic growth, the national economic growth rate in 2020 experienced negative growth (-8,6%). The growth rate in 2021 compared to 2020 was 13,1%, followed by a lower growth rate in 2022 (6,3%) due to increased global geopolitical uncertainty accompanied by high prices of raw materials and energy products. Consequently, consumer price inflation in the first ten months of 2022 noticeably accelerated, and accordingly the estimated rate of inflation in the 2022 was significantly increased, to 10.6% (from 2.7% in 2021, measured by the harmonized index of consumer prices) (HNB, 12/2022).

The global economic contribution of tourism (measured in tourism direct gross domestic product - GDP) in pre-pandemic year reached US\$3.5 trillion, while in 2020 it almost halved (US\$1.6 trillion). Year 2021 announced the recovery of the global tourism industry since the global economic contribution of tourism in 2021 grew to US\$1.9 trillion. Moreover, global tourism experienced a decrease of 73% in tourist arrivals in the first pandemic year and 69% in the second pandemic year, compared to 2019. Although 2021 recorded a 4% upturn compared to 2020 (415 million versus 400 million), the number of tourist arrivals remains far below the pre-pandemic level and the majority of experts (64%) expect international arrivals to return to 2019 level in 2024 or even later (UNWTO, 2022).

Croatia has a long tradition of tourism lasting from 19th century. Tourism represents the dominant economic activity in Croatia, and together with hospitality and service activities represents a significant share of Croatian GDP (NN 13/2021). According to the UNWTO (2021), Croatia is among the ten most vulnerable countries according to the criteria of the direct impact of tourism on the share of GDP (Bogdan et al., 2021). Travel restrictions, border closures, quarantine regulations and the implementation of epidemiological measures in Croatia as well as around the world, in order to prevent the spread of the virus, had a direct impact on the decrease in tourist arrivals and overnights (DZS, 2021). In the first pandemic year, the number of tourist nights in Croatia dropped to the lowest level in 20 years. Accordingly, in 2020, Croatian tourism indicators dropped sharply reaching 36.8% of tourist arrivals and 44.7% of overnight stays compared to 2019 (HGK, 2021). Also, hospitality industry indicators declined where, compared to year 2019, hotels and similar accommodation experienced decline in terms of the number of permanent beds (-10,38% in 2020, and -3,45% in 2021) and in number of total tourist arrivals (-75,70% in 2020, and -48,43% in 2021). Occupancy rate of permanent beds in hotels in 2019 was 48,2%, dropping to 18% in 2020, and to 32,3% in 2021. Although the number of tourist nights in 2020 decreased in all groups in commercial accommodation compared to 2019, Hotels and similar accommodation experienced the largest decline (73,0%). The Croatian government has adopted several measures in order to support the travel and tourism sector and to provide the companies with more liquidity and easier access to funding under favourable conditions, helping them to survive, preserve employees, mitigate business challenges and recover. Those measures can be classified into eight areas: fiscal policy, monetary policy, jobs & skills, market intelligence, public-private partnerships, restarting tourism, health and safety protocols, domestic tourism (UNWTO, March 2021).

According to Achim et al. (2021), numerous studies have been published about the COVID-19 pandemic and business. However, they found that only few studies analyse the level of business performance as a response to the COVID-19 pandemic. Considering that the Covid-19 pandemic particularly impacted the tourism and hospitality industries, with widespread closures as well as later re-opening times than in other industries (Ntounis et al., 2022), an analyse of the business performance of hospitality industry in pandemic period is preferable. Business performance can be measured by financial and non-financial measures. Financial measures have the advantage of being objective, simple and easy to understand. However, they have the

disadvantage of being not easily available and being historical. Beside they can also be subject to manipulations, and incompleteness. While the non-financial measures have the disadvantage of being subjective (Santos & Brito, 2012, Chong, 2008 in Fowowe, 2017).

Due to the importance of this topic, we have decided to investigate the financial performance of large hotels in Croatia before and during the COVID-19 period. We focus on the effect of the Covid-19 pandemic on the business performance, where business performance is measured by several financial indicators (current liquidity ratio, solvency ratios, activity ratio – total turnover ratio, and profitability ratios – return on assets and profit margin, i.e. return on sales). The research question for our study is set as follows: which financial performance indicators of large hotels in Croatia deteriorated in the first and second year of the COVID-19 pandemic?

2. Overview: methodologies and previous research

The financial ratio analysis is a fundamental analysis when analysing financial performance. When calculating ratios, the two most important and most commonly used financial statements are the balance sheet and the income statement (Kim & Ayoun, 2005). A financial ratio shows the relationship between two amounts and allows for the assessment of a relationship and enables to quantify the degree of change within the relationship (Asdullah & Rehman, 2015; Lawder, 1989 in Kim & Ayoun, 2005). Therefore, ratio analysis is a fundamental tool for evaluating the financial health of a company and the effectiveness of the company's decisions to run its business (Kim & Ayoun, 2005; Guridno & Guridno, 2020 in Malukah, 2021). For that purpose, many financial ratios have been developed and are used by practitioners and academicians (Kim & Ayoun, 2005; Pavone et al., 2021). Financial ratios can be categorized in four categories (Sing et al., 2015 in Arif et al., 2016; Andrew and Schmidgall, 1993 in Asdullah & Rehman, 2015; Malukah, 2021) as presented in Table 1.

Table 1: Financial ratios description

Liquidity Ratios	Measures a company's ability to meet its short-term obligations as they fall due	Current Ratio, Quick Ratio, Cash Ratio and Cash Turnover Ratio
Solvency Ratio	Indicates company's ability to meet all of its obligations	Debt to Assets Ratio, Debt to Equity Ratio, Long Term Debt to Equity Ratio, and Time Interest Earned Ratio.
Activity Ratio	Measures company's efficiency to use its assets	Accounts Receivable, Inventory, Working Capital, Fixed Assets, and Total Turnover Ratio
Profitability Ratio	Assess the company's ability to generate profits.	Net Profit Margin, Return on Investment, Return on Equity, and Basic Earning Power

Source: authors according to Sing et al., 2015 in Arif et al., 2016; Andrew and Schmidgall, 1993 in Asdullah & Rehman, 2015; Malukah, 2021

The current ratio (CR) is one of the commonly used ratios to measure liquidity. It represents the relationship between current assets to current debt. The desirable value of this indicator is above 1 (1-2) because the current assets' value must be higher than the value of the current debt (Fraser & Ormiston, 2016 in Devi et al. 2020). However, the ideal level of a current ratio varies depends on industry. In hospitality industry, hotels can operate with a current ratio of 1.2 - 1.5 (Andrew & Schmidgall, 1993, Jagels, 2007, in Bhamornsathit & Katawandee, 2016) due to the specific structure of current assets characterized by a low share of inventories, most often in the

form of food and beverages (Jagels, 2006 in Milasinovic et al. 2020). A lower ratio value indicates a problem in liquidity while a high ratio value indicates that funds are not used optimally, thus reducing the ability of company to generate profit (Subramanyam, 2014 in Devi et al. 2020; Malikah, 2021). Moreover, the liquidity ratio can affect the investors' assessment of investment in the company (Malikah, 2021). An economic crisis has negative influence on company liquidity (Devi et al. 2020). Amnim et al. (2021) show that COVID-19 pandemic has negatively affected the company's liquidity as well as profitability. Guerini et al. (2020) also found unprecedented increase in the share of illiquid and insolvent firms in the first pandemic year in France. Furthermore, they reveal that the crisis has a heterogeneous effect among different sectors, firm size, and region. The most vulnerable sectors are hotels and restaurants, household services, and construction while micro-firms and large businesses are more likely to face solvency issues considering small and medium firms. Ratnaningtyas & Nurbaeti (2023) determine that CR has a significant effect on ROA in hotel, restaurant and tourism companies listed on the Indonesia Stock Exchange. Decrease in sales volume during the Covid-19 pandemic, resulted in decrease of CR and ROA, indicating that the company's short-term obligations cannot be fulfilled so that current assets cannot be used effectively because the company does not have sufficient assets. It is also important to emphasise a disadvantage of the classical ratios, based only on the balance-sheet figures. They do not grasp the time correlation between cash inflows and cash outflows caused by the falling due of the debts (Doina & Mircea, 2008).

The solvency ratio indicates a company's ability to pay off all of its obligations (short-term and long-term obligations). The use of short-term debt affect liquidity, and the use of long term debt affect solvency. If the company's total debt is greater than the total assets, a company is considered to be unsolvable (Malikah, 2021). Debt to Asset Ratio (DAR) is one of the solvency ratios used to measure the extent to which the company's assets are financed with debt or, in other words, the effect of company's debt on asset management (Kasmir, 2016 in Siagian et al., 2021; Baraja and Yosya, 2019 in Syarifah, 2021). This ratio is also important to creditors, especially to long-term creditors (Abbas, 2018 in Devi et al. 2020). In the hospitality industry, this ratio is generally ranging from 0.60 - 0.90 (Jagels, 2007 in Bhamornsathit & Katawandee, 2016).

The activity ratio determines a company's efficiency in using its assets to generate sales. Therefore, this ratio indicates whether a company uses its asset optimally. A higher activity ratio is preferred (Malikah, 2021). The total turnover ratio (TAT), as one of the measures of company activity, is calculated as a ratio of total revenues and total assets, and it reveals the total business activities of the company (Ježovita, 2016). Respectively, it measures the overall ability of a company to generate income for a given level of assets (Robinson, Van Greuning, Henry, & Broihahn, 2009, p. 283. in Ježovita 2016). In hospitality industry, the activity ratios determine management's ability to control certain classes of assets such as inventory and long-term assets (Jagels, 2007 in Bhamornsathit & Katawandee, 2016). TAT differs by industry, and in the hotel industry is lower than, for example, in the food service industry due to the difference in the amount of investment in fixed assets as well as due to the possibilities of increasing asset turnover (Jagels, 2006). Moreover, study of Warrad & Al Omari (2015) reveals that hotels and tourism sector has the lowest total asset turnover ratio compared to all other services sectors. The study of Ratnaningtyas & Nurbaeti (2023) concludes that during the pandemic hotel, restaurant, and tourism companies in Indonesia have very low TAT due to the imposition of restrictions on community activities.

The profitability ratio analysis measures a company's ability to generate profits, but it also measures the effectiveness of a company's management (Devi et al. 2020; Malikah, 2021). This analysis can be conducted by different financial ratios such as total asset growth, loan growth rate, and earnings growth rate (Obim, Takon & Mgbado, 2020 in Amnim et al., 2021). Return on assets (ROA) is the most commonly used measure of profitability, calculated as a ratio between net income after tax and total assets. Therefore, it shows the asset productivity in generating profit (Handayani & Zulyanti, 2018; Syafirah, 2019; Subramanyam, 2014 in Devi et al. 2020). However, in order to analyse the success of a company's operations, various complex indicators are used, and the Du Pont system of indicators is the most commonly used. Du Pont analysis is a common form of financial statement analysis that disaggregates ROA into two multiplicative components: profit margin (net profit + interest/business income) and asset turnover (business income / total assets). Disaggregating ROA into these components allows managers, market participants, and other stakeholders to understand sources of superior (or inferior) returns within the industry and across industries. Profit margin or Return on Sales (ROS) is a measure of a company's efficiency to retain realized total income in the form of profit increased by interest expenses. The schematic system is most often shown in a pyramid form, where the profitability of the total assets is shown at the top of the pyramid (Subramanyam, 2014 in Devi et al. 2020; Ježovita, 2016). The importance of profitability analysis is evident because the economic crisis harms a company's ability to generate profits due to a decline in people's purchasing power, and this is particularly prominent in the short term (Devi et al. 2020).

The study about profitability performance of Croatian hotel industry (Karanović et al. 2020) suggest that cash ratio, structure ratio, debt factor (in years), equity to non-current assets, total assets turnover, activity ratio, accounts receivables, return on revenue and crises in the 2009-2015 period are related to the financial performance of the Croatian hotel industry. In the observed period expected crisis had a negative influence on the ROA and ROE. Moreover, they reveal that indebtedness factor, TAT accounts receivable turnover, cost to income ratio and gross profit margin have significant impact to ROA. While, total assets turnover has the highest impact to ROE. The findings from Jakaša's (2017) study on financial determinants of performance in large hotel companies in Croatia showed that revenue, leverage, and coverage ratio had no significant influence on ROA but leverage and equity ratio have a negative and significant correlation with ROS.

Recent studies related to the effect of COVID-19 to business performance reveal different impact of the pandemic on various financial ratios depending the sectors and countries. Malikah (2021) found that the liquidity ratio of hospitality companies is significantly different in pre-pandemic and pandemic period. The analysis conducted by Bogdan et al. (2021) revealed the significant negative effect of the COVID-19 pandemic on the returns of stocks in tourist as well as other sectors on the Zagreb Stock Exchange. Findings from Atayah et al. (2021) revealed different impact of COVID-19 on the financial performance (measured by ROA, ROE and EPS) of logistic firms in different countries. Overall, the COVID-19 has negatively affected the financial performance of logistics firms in six G-20 countries. Achim et al. (2021) reveal that equity financing, proper liquidity management, and an increased company size consolidate the economic performance of entities regarding ROE and ROA. Furthermore, the total net profits of the market decreased by 37.43% during the analysed period June 30, 2019–June 30, 2020, and all service sectors (hotel and restaurants, pharmaceuticals, and real estate registered) significantly decreased. However, they found significant improvement in net profits of small companies engaged in agriculture, commerce, construction, IT R&D, transport and storage. In a study that analysed the impact of the COVID-19 pandemic on the financial performance of companies listed on the Indonesia Stock Exchange, Devi et al. (2020) found differences in

financial ratios among different sectors. The consumer goods sector experienced a decrease in the leverage ratio and an increase in the liquidity ratio, profitability ratio, and short-term activity ratio. While property, real estate, building construction, finance, trade, services, and investment sectors experienced a decrease in the liquidity and profitability ratios. Sraka & Kozjak (2022) found that the COVID-19 pandemic had a positive impact on revenues, assets, capital and profitability of companies from the promotional sector in Croatia, but have negatively affected the number of active companies. Ntounis et al. (2022) found that tourism dependent businesses are more vulnerable to the pandemic compared to some other sectors such as professional services. Furthermore, some other sectors, such as retail, were actually more vulnerable compared to tourism sector. Roška (2021) conducted a research on the business performance of the listed hotel companies in 2020 on the Zagreb Stock Exchange (Croatia). She concluded that companies achieved only 37 percent of total revenue in 2020 compared to 2019. Based on the PROF ratio, she concluded that hotels companies need to improve their financial strength, ROE, and total assets turnover in order to be more resilient to this crisis. Mikulić et al. (2021) concluded that introduced epidemiological measures to prevent the transmission of COVID-19 have influenced the majority of economic activities in 2020, but tourism has been most affected and, besides hotels and restaurants, the most affected economic sectors were transport, trade, food industry, sports, entertainment, recreational and personal services. Brozović et al. (2021) analyse the financial position and performance of listed hotels in Croatia in the first pandemic year. They reveal that every aspect of hotels' business has been negatively affected by the pandemic, lowering their liquidity, activity, and profitability, and increasing indebtedness.

3. Tourism and hospitality industry in Croatia before and during the COVID-19 pandemic

The tourism metrics for the period 2019 to 2021, collected from The UNWTO Tourism Data Dashboard presented in Table 2., reveal the impact of the pandemic on tourism in Croatia. During the pandemic years, there was a huge decline in the number of arrivals (68% in 2020, 39% in 2021), realized receipts (53% in 2020, 8% in 2021), international tourism expenditure (56% in 2020, 39% in 2021) and in the share of tourism in total export (41% in 2020, 21% in 2021). However, tourism metrics in 2021 compared to 2020 indicate a slight recovery of tourism (table 2).

Table 2: Tourism data for Croatia, comparison of pandemic years and pre-pandemic year

Indicator	Details	2020/2019	2021/2019
Arrivals	International Tourist Arrivals (in million)	-68%	-39%
Receipts	International Tourism Receipts (in USD billion)	-53%	-8%
Expenditure	International Tourism Expenditure (in USD billion)	-56%	-39%
Tourism as Exports	Tourism as share of total Exports (in %)	-41%	-21%

Source: Authors by The UNWTO Tourism Data Dashboard <https://www.unwto.org/tourism-data/unwto-tourism-dashboard> (08.01.2023)

Table 3 presents the overview of the number of permanent beds, tourist arrivals and nights, and occupancy rate of permanent beds in the pandemic years and pre-pandemic year by types of tourist accommodation establishments according to division 55 of NKD 2007¹, and it

¹ According to DZS (TOURIST ARRIVALS AND NIGHTS IN 2019, available at; https://mint.gov.hr/UserDocsImages/AAA_2020_ABC/c_dokumenti/200228_DZS_turizam2019.pdf) Division

encompasses enterprises of all sizes (micro, small, medium and large). Compared to other accommodation groups, Hotels and similar accommodation (hotel companies) faced the largest decline in tourist arrivals, both domestic and foreign, in overnight stays for foreign tourists, and in an occupancy rate of permanent beds. The largest decline was experienced in the first pandemic year, followed by a moderate decline in the second pandemic year.

Table 3: Overview of number of permanent beds, tourist arrivals and nights, in pandemic years and pre-pandemic year, according to division 55 of NKD 2007

DIVISION 55 OF NKD 2007.		Hotels and similar accommodation	Holiday and short-stay accommodation	Camping sites grounds	Other accommodation	Total
Number of permanent beds	2020/2019	-10,38%	-10,14%	-7,43%	-43,57%	-9,56%
	2021/2019	-3,45%	-7,58%	-4,78%	-30,78%	-6,33%
Arrivals - total	2020/2019	-75,70%	-56,64%	-55,80%	-46,97%	-
	2021/2019	-48,43%	-30,01%	-11,69%	-28,65%	34,70%
Arrivals - domestic	2020/2019	-46,10%	-23,17%	9,16%	-43,28%	-
	2021/2019	-6,48%	-4,93%	51,27%	-25,31%	-3,51%
Arrivals - foreign	2020/2019	-80,92%	-60,64%	-57,86%	-62,84%	-
	2021/2019	-55,83%	-33,01%	-13,69%	-43,02%	38,68%
Nights - total	2020/2019	-72,98%	-46,59%	-52,34%	-48,03%	-
	2021/2019	-39,37%	-19,85%	-8,73%	-31,92%	23,06%
Nights - domestic	2020/2019	-39,73%	-15,13%	0,74%	-45,12%	-
	2021/2019	2,02%	1,45%	31,54%	-28,87%	3,65%
Nights - foreign	2020/2019	-76,92%	-49,42%	-53,77%	-63,47%	-
	2021/2019	-44,28%	-21,77%	-9,81%	-48,09%	25,31%
Occupancy rate of permanent beds	2020/2019	-69,85%	-40,57%	-48,51%	-7,91%	-
	2021/2019	-37,21%	-13,28%	-4,14%	-1,65%	17,72%

Source: Authors according to data from DZS

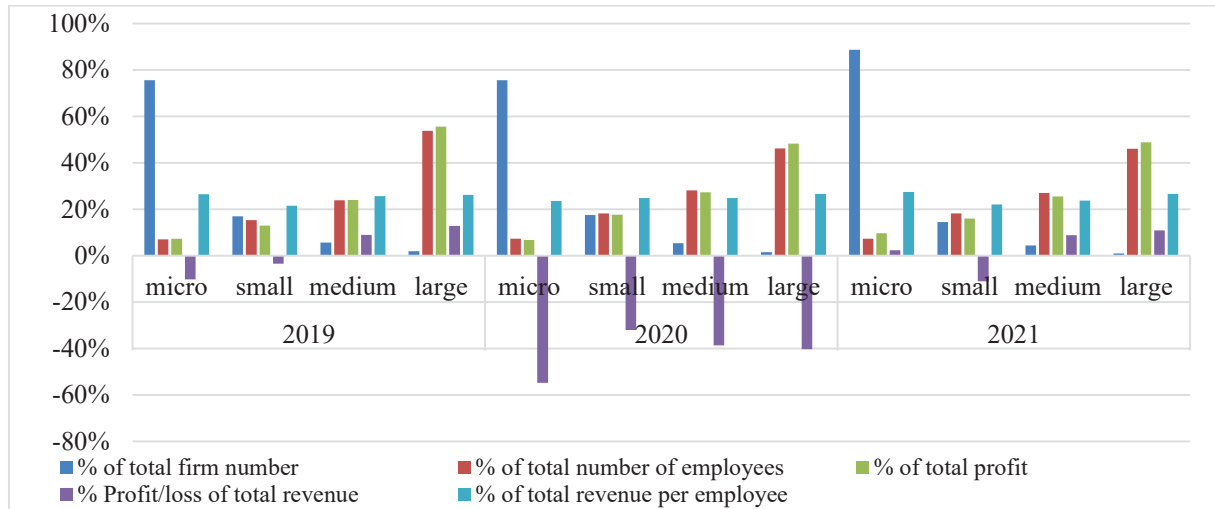
Different factors affect the hotel business, and the size of the hotel is one of them (Ćorluka, 2015). Therefore, graph 1 presents data summary for each group of hotels separately. When observing hotel companies according to their size during the observed period 2019-2021 (Figure 1) it is evident that analysing micro, small, medium and large companies as a single unit could be misleading, not only due to differences in their fundamental characteristics, but also due to the dominance of large companies in the number of employees and profit share.

55 of the NKD 2007. includes short-stay accommodation service activities to tourists. Tourist accommodation establishments listed in this division are broken down into four groups:

- Group 55.1 Hotels and similar accommodation
- Group 55.2 Holiday and other short-stay accommodation
- Group 55.3 Camping sites and camping grounds
- Group 55.9 Other accommodation

Namely, large companies employ almost half of all employees and have the largest share of profit in all three observed years, while in 2019 and 2021 they have the largest share of profit in total revenue. In 2020, large companies have the largest share in revenue per employee, while in 2019 and 2021 they share this position with micro companies.

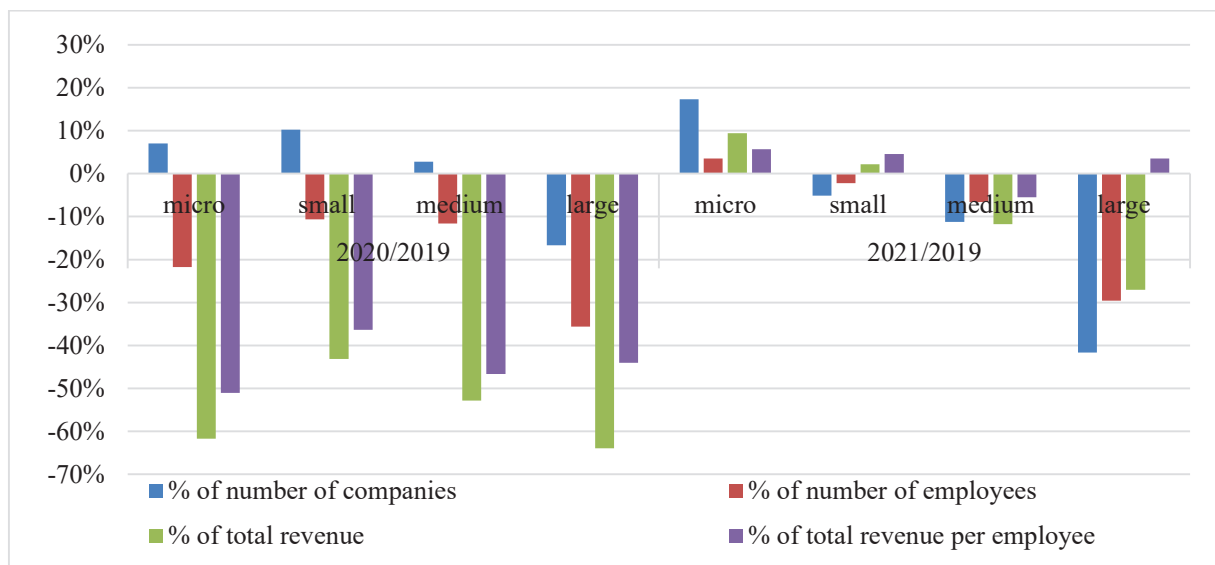
Figure 1: The data summary of micro, small, medium and large hotel companies (I-5510) before and during COVID-19 pandemic period



Source: Authors according to data from HGK, digital chamber

According to the data summary for micro, small, medium and large companies presented in Figure 2, the largest decline in analysed indicators in pandemic years can be observed among large companies. Respectively, large companies recorded the largest decline in terms of the number of companies, number of employees and total revenue, while medium companies faced the largest decline in term of total revenue per employee.

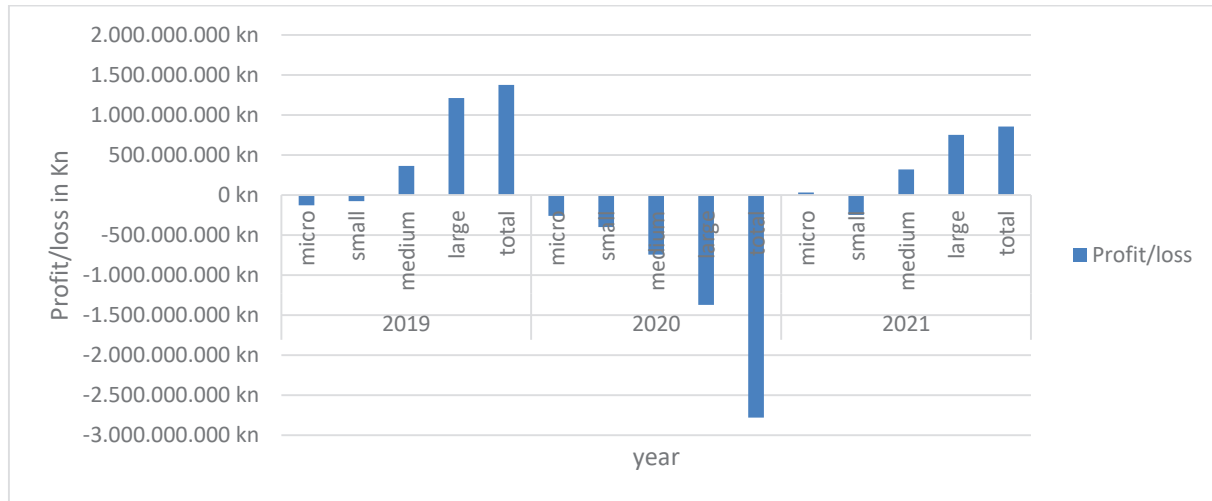
Figure 2: The data summary of micro, small, medium and large companies (I-5510), comparison of pandemic years and pre-pandemic year



Source: Authors according to data from HGK, digital chamber

Moreover, according to realized profit/loss of micro, small, medium and large companies presented in Figure 3, large companies suffered the largest decline in profit in the first pandemic year. However, in the pre-pandemic year and in the second pandemic year, along with medium size companies, they realized profit, while micro and small companies realized a loss.

Figure 3: Realized profit/loss of micro, small, medium and large companies (I-5510) before and during COVID-19 pandemic period



Source: Authors according to data from HGK, digital chamber

4. Research Methodology

In this study we focus on large companies engaged in the activity of providing accommodation services, due to their contribution to the number of employees and the total revenue in this industry. Considering the fact that financial ratios are calculated for the period from 2019 to 2021, the condition for selecting companies referred to the inclusion of companies that operated in all three observed years. Therefore, 14 companies are included in the sample. Financial statements of hotel companies are collected from HGK-Digital Chamber. The data are collected for companies engaged in the activity of providing accommodation services (NACE 5510) in Croatia for the period 2019-2021, where the year 2019 represents the pre-pandemic year, while 2020 and 2021 represent pandemic years. Similar as in the research conducted by Malikah (2021) and Amnim et al. (2021), we analyse the financial performance of selected companies before and during the pandemic by comparing financial indicator values in the pre-pandemic year and the first year of the pandemic. Moreover, we compare the financial indicator values in the pre-pandemic year and the second year of the pandemic. The magnitude of these differences is then compared by examining associated p-values and effect sizes. The existence of significant differences in the financial performance of large hotel companies before and during the COVID-19 pandemic is examined by applying the Wilcoxon signed rank test. Also, this research examines the relationship between selected financial indicators before and during the COVID-19 pandemic. The correlation between indicators is examined by applying the Spearman correlation coefficient. The key variables of interest comprise liquidity, solvency, activity, and profitability, and they were operationalized following the principles of Jagels (2007), Herciu et al., (2011), Ježovita, (2013 and 2016) as shown in table 4.

Table 4: Variable Measurements

Variables	Formula	Desirable value (hotel industry value)
Dependent variable:		
<i>CL-Current Liquidity ratio</i>	Current assets to Current debt	1-2 (1,2 - 1,5)
<i>DAR-Solvency ratios</i>	Total debt to Total assets	< 0,50 (0.60 0.90)
<i>TOT-Total Turnover ratio</i>	Net sales to Total assets	A higher activity ratio is preferred
<i>ROS-Return on Sales</i>	Net profit + Interest expenses to Net sales	A higher return rate is preferred
<i>ROA-Return on Assets</i>	ROS x TOT	A higher return rate is preferred
Independent variable:		
<i>COVID-19 Pandemic</i>	<i>Measured by comparing the above listed variables prior to and during COVID-19 pandemic period</i>	

Source: Authors according to Herciu et al., (2011), Ježovita, (2013 and 2016)

5. Results and discussion

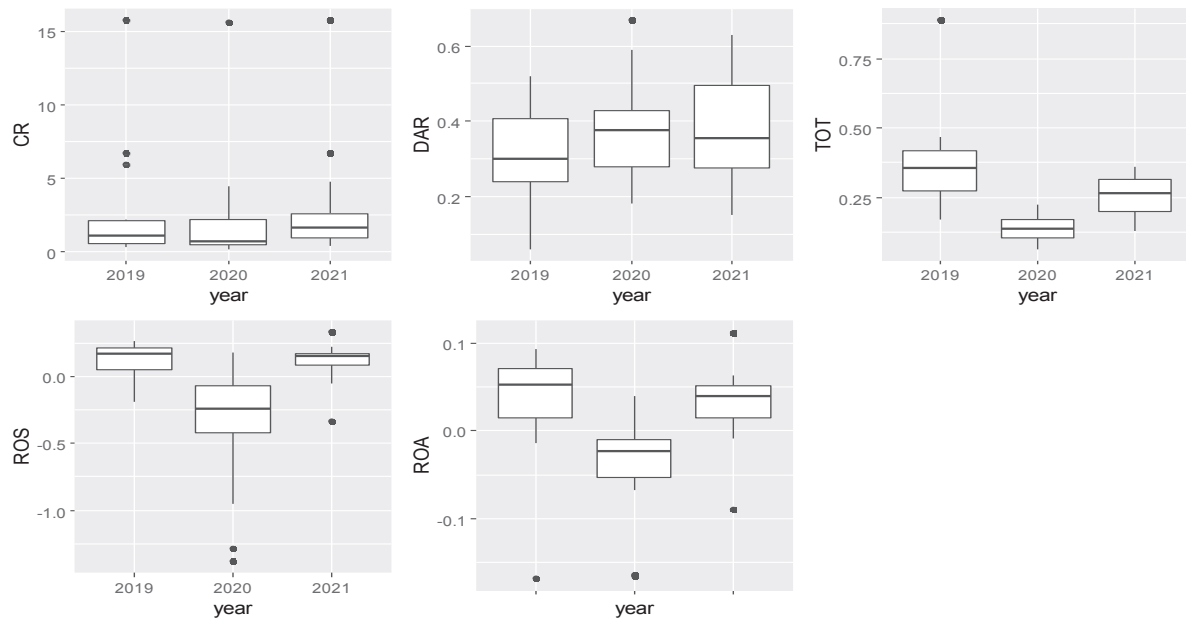
The existence of significant difference in financial performance of large hotel companies before and during the COVID-19 pandemic is analysed by comparing selected financial ratios before and during the COVID-19 pandemic. Selected indicators and the corresponding data summary are presented in Table 5 and visualized in Figure 4.

Table 5: The data summary of 14 large hotel companies in Croatia for period 2019-2021

Indicator/ year	Mean	Standard Error	Standard Deviation	Sample Variance	Median	Q1	Q3	Kurtosis	Skewness	Range	Count
CR_2019	2,80	1,14	4,25	18,10	1,03	0,49	3,07	7,10	2,57	15,57	14
CR_2020	2,25	1,08	4,04	16,29	0,69	0,41	2,31	11,10	3,23	15,50	14
CR_2021	2,97	1,09	4,09	16,73	1,58	0,87	3,27	8,18	2,75	15,41	14
DAR_2019	0,33	0,04	0,13	0,02	0,30	0,24	0,43	-0,30	-0,15	0,46	14
DAR_2020	0,39	0,04	0,15	0,02	0,38	0,27	0,47	-0,44	0,58	0,49	14
DAR_2021	0,38	0,04	0,15	0,02	0,36	0,27	0,52	-0,95	0,32	0,48	14
TOT_2019	0,37	0,05	0,18	0,03	0,36	0,24	0,44	5,67	1,96	0,72	14
TOT_2020	0,14	0,01	0,05	0,00	0,14	0,09	0,18	-0,83	0,27	0,16	14
TOT_2021	0,25	0,02	0,08	0,01	0,27	0,19	0,32	-1,13	-0,34	0,23	14
ROS_2019	0,12	0,04	0,13	0,02	0,17	0,04	0,22	0,85	-1,17	0,45	14
ROS_2020	-0,38	0,13	0,49	0,24	-0,24	-0,56	-0,03	0,38	-1,18	1,56	14
ROS_2021	0,11	0,04	0,16	0,02	0,15	0,07	0,18	5,26	-1,89	0,67	14
ROA_2019	0,03	0,02	0,07	0,004	0,05	0,01	0,08	6,93	-2,39	0,26	14
ROA_2020	-0,04	0,02	0,06	0,004	-0,02	-0,06	0,00	1,48	-1,34	0,21	14
ROA_2021	0,03	0,01	0,05	0,002	0,04	0,01	0,05	3,55	-1,13	0,20	14

Source: Compiled by the financial statements of selected hotel companies for the period 2019-2021. according to the data from the HGK-digital chamber

Figure 4: Financial performance comparison



Source: Authors

As expected, all observed financial ratios indicate deterioration in financial performance for the first pandemic year compared to the pre-pandemic year. Also, all observed financial ratios except CLR indicate worse financial performance in the second pandemic year compared to the pre-pandemic year. Still, some differences are not statistically significant. We compare the magnitude of these differences in Table 6 which summarizes the results of conducted tests and presents the estimated effect sizes and magnitude of these differences.

Table 6: Result of the effect of the COVID-19 on the financial performance of large hotel companies in Croatia

Financial indicators	Median	W stat	p – value	Effect size (magnitude)
CR-Current Liquidity Ratio				
2019	1,03	78,5	0,1093	0.436 (moderate)
2020	0,69			
2019	1,03	35	0,2958	0.294 (small)
2021	1,58			
DAR-Solvency Ratios				
2019	0,3	11,5	0.0108	0.69 (large)
2020	0,38			
2019	0,3	22	0.108	0.42 (moderate)
2021	0,36			
TOT-Total Turnover Ratio				
2019	0,36	105	0,0001	0.881 (large)
2020	0,14			
2019	0,36	102	0,0006	0.83 (large)
2021	0,27			

Financial indicators	Median	W stat	p – value	Effect size (magnitude)
ROS-Return on Sales				
2019	17%	102	0,0006	0.83 (large)
2020	-24%			
2019	17%	59	0,715	0.126 (small)
2021	15%			
ROA-Return on Assets				
2019	5%	92	0,01	0.663 (large)
2020	-2%			
2019	5%	68	0,358	0.260 (small)
2021	4%			

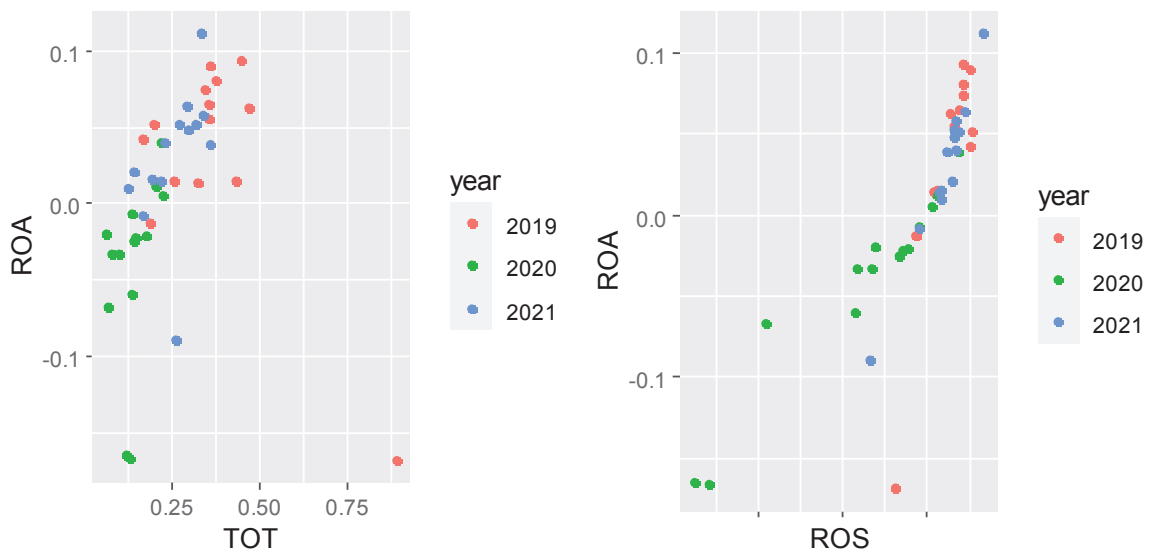
Source: Authors

When comparing the pre-pandemic year and the first pandemic year, all financial ratios indicate a moderate or large differences in the financial performance of companies. Significant differences and large effects in the financial performance are recorded for DAR, TOT, ROS and ROA, where the largest effect size is found for ROS. This shows that the COVID-19 pandemic highly affected the company's efficiency to retain the realized total income in the form of profit increased by interest expenses. The only significant difference in the financial performance with the large effect size for both analysed periods is found when comparing TOT. The median TOT value significantly decreased in both pandemic years compared to the pre-pandemic year. The decrease of this indicator in the pandemic years can be explained due to decline in the number of tourist arrivals and net sales which resulted in a decrease in occupancy rate, as well as in asset engagement. Moreover, considering the first pandemic year, the results indicate that pandemic had a negative effect on DAR through a significant growth in the share of debt in total assets. Still, the majority of companies remain solvent in the pandemic years. It can be assumed that government measures related to the moratorium on loans as well as the provision of special financing programs contributed to this. Although there is no significant difference in the median value of the CLR before the COVID-19 pandemic period and in the pandemic years, it is important to observe that more than half of companies were illiquid in the first pandemic year. However, the median value of CRL in the second pandemic year increased compared to the pre-pandemic year, indicating the fast recovery of the company's liquidity. When comparing the pre-pandemic year and the second pandemic year, CRL, ROS and ROA indicate a small, non-significant difference, while DAR shows moderate but non-significant difference in the financial performance of companies. That can also be explained by adopted government measures and the slight recovery of tourism traffic. The significant decline in the median value of ROA was detected only for the first pandemic year. Therefore, it can be concluded that the COVID-19 pandemic affected the company's ability to generate profits in the first pandemic year, and also indicate that the pandemic influence on profitability was beyond the effectiveness of a company's management.

Considering the fact that the ROS and TOT have a significant impact on the overall profitability of the company, it was of interest to examine the relationship of these indicators with ROA. The correlation coefficients with corresponding p-values are presented in Table 7. The relationship between ROA and ROS, and between ROA and TOT through the evaluated period is presented in Figure 5. The results confirm the strong positive relationship between ROA and ROS. The interesting result is related to the relationship between ROA and TOT. These indicators show no significant relationship for the pre-pandemic year, but exhibit positive

significant relationship in the both pandemic years. Therefore, although there was a significant decline in the TOT ratio in the pandemic years compared to the pre-pandemic year, this was not recorded for ROA in the second pandemic year due to its stronger relation with ROS. This is in agreement with the findings of Herciu et al. (2011) who detected a strong correlation between ROA and ROS.

Figure 5: The relationship between financial indicators during the pre-pandemic/pandemic period



Source: Authors

Table 7: Correlation between financial indicators

Correlation	2019 r (p)	2020 r (p)	2021 r (p)
ROA to ROS	0,686 (0,007)	0,965 (0)	0,943 (0)
ROA to TOT	0,257 (0,374)	0,613 (0,022)	0,697 (0,007)

Source: Authors

6. Conclusion

The pandemic affected tourism in Croatia as well as around the globe causing an unprecedented disruption. This study confirms that COVID-19 pandemic had a negative effect on all observed financial ratios of large hotel companies, particularly in the first pandemic year.

During pandemic years, companies TOT significantly declined which indicates that the majority of companies were ineffective in using assets to generate income. Although low TOT is common in this industry, the pandemic had a devastating effect on the occupancy rate, therefore the assets engagement was suboptimal.

However, despite pandemic, majority of companies remain solvent in both pandemic years while in second pandemic year, majority of companies were liquid and solvent. ROS and ROA significantly declined in first pandemic year while in the second pandemic year no significant

differences were recorded compared to the pre-pandemic year. The effect cannot be measured by solely analysing different indicator values, but analysing indicators can help us to understand the magnitude of this effect and to recognize signs of recovery. Through the analysis of financial indicators before and during the pandemic, this study determined that the COVID-19 pandemic had a significant impact on the assets activity and profitability performance of hotel companies in Croatia, particularly in the first pandemic year. Also, a slow recovery is evident in the second pandemic year, indicating the resilience of tourism and the hotel industry to such crises. We believe that adopted government measures along with the slight recovery in tourism arrivals and overnight stays in the second pandemic year were crucial for companies to survive the first year of the crisis and begin the recovery in the second year. Moreover, we believe that the management efficiency had a tremendous contribution for businesses and consequently to the recovery of the industry. As the pandemic still affects different industries and new crises are emerging, understanding the crisis effect is crucial for successful managing such crises. This cannot be achieved without monitoring and understanding the dynamics of financial indicators. Therefore, these results and financial metrics, in general, can help financial managers in hotel industry companies. The findings bring insights on significance of examined variable as well as their relationship to profitability. Thus this study provide hotel managers additional insight into making optimal financial decisions. They need to improve hotels total assets turnover and profitability in order to be more resilient to this crisis. The recommendations for the tourist sector derive from cognition based on these results. In crises, the company's resilience largely depends on the support of various institutions involved in the decision-making process. Therefore, prompt and adequate reactions/measures are crucial for the company's survival. The focus of this study is put on large hotel companies due to their contribution to number of employees and to the total revenue in this industry, but also due to the difference in the business operations and characteristics of companies with regard to their size. This limitation, as well as the time coverage of the research and the number of companies covered by this research, open new research challenges. Considering differences among companies due to their size and location, recommendations for future research refer to the determination of financial performance between hotel companies considering their size, and also considering the region.

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A professional paper

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CROWDFUNDING IN THE EU: CURRENT STATE AND PERSPECTIVES¹

ABSTRACT

Small and medium-sized enterprises, measured by their share in GDP and total employment, represent the key driver of the European economy and greatly influence the achievements of international competitiveness. At the same time, they are faced with numerous challenges, among which, the access to finances and the negative effects of the COVID-19 pandemic must be highlighted. In the context of access to financing, small and medium-sized enterprises become increasingly oriented towards alternative methods of financing, especially crowdfunding. However, although this method of alternative financing is increasingly recognized, there are still significant obstacles to its full implementation. Some of them are lack of knowledge among the population and entrepreneurs, as well as challenges arising from legal regulations. The research problem in this paper related to all above mentioned facts.

The purpose of the research is to determine key challenges and perspectives of crowdfunding in the EU. The research aims to present theoretical aspects of crowdfunding, analyse current state of crowdfunding in the EU and identify the effects of the COVID-19 pandemic on the implementation of crowdfunding in the EU. In this paper, an empirical analysis of crowdfunding in the EU was done based on quantitative data collected from relevant European and global databases. The research results indicate that global challenges result in an increasing orientation of entrepreneurs towards crowdfunding and other alternative financing methods. At the same time, users are faced with numerous challenges, which require additional improvements and adaptation of the legislative framework and practices.

Key words: *alternative financing, crowdfunding, European Union, challenges, SMEs.*

1. Introduction

Small and medium-sized enterprises (SMEs) in the EU faced a number of challenges that followed the appearance of the Covid-19 pandemic, which affected on the overall economy at

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a global level. SMEs are less resistant to unfavourable external conditions, and during the Covid-19 crisis period they faced a significant decrease in the volume of business activities, resulting in the achievement of modest business results, the lay-off of a large number of employees, and many companies were forced to permanently suspend their business because of their inability to adjust to new market conditions and the inability to provide necessary financial means (Crowdfund Insider, 2021).

Micro-, small- and medium-sized enterprises are of great importance for the economic achievements and performances of the European economy; given their numbers, the share of total employment they bring and the value added they create (Table 1). According to the 2020 data, SMEs in the European economy account for 99.8% of the total number of companies and represent 65% of total employment. Furthermore, SMEs participate in generating 53% of the total added value of the European economy. Generally, key reasons for the great representation of the SMEs in the European and global economy include the emphasis that they represent initiators of innovation activities (to a greater extent than the large companies) and tend to be more flexible and responsible for customers, as well as all other market stakeholders.

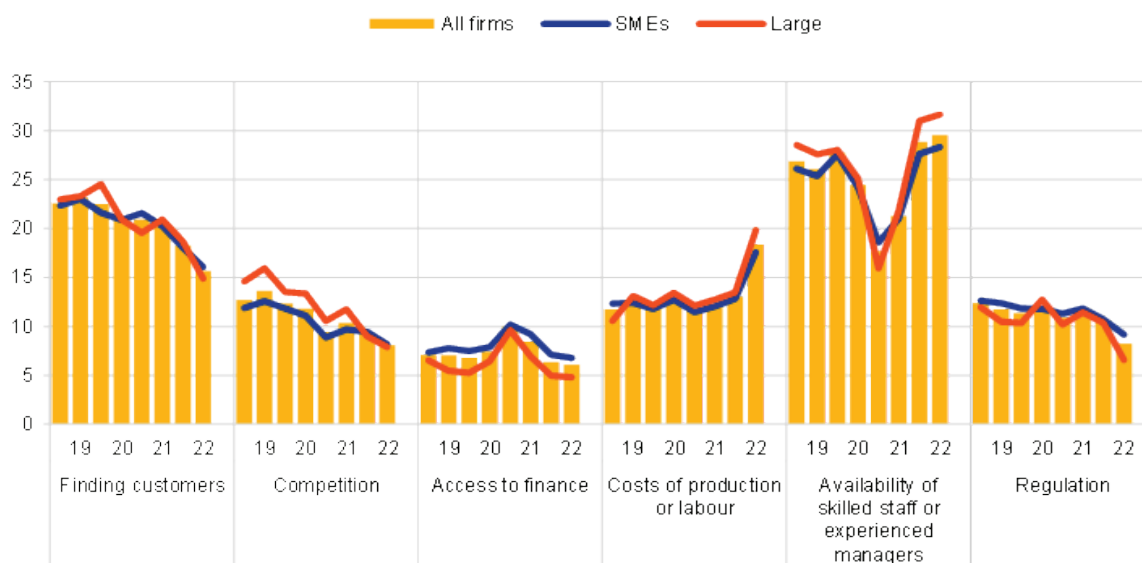
Table 1: The importance of micro-, small- and medium-sized enterprises for the European economy in 2020

	Micro	Small	Midium	TOTAL SMEs	Big	TOTAL
<i>Enterprises</i>						
Number	21,044,884	1,282,111	199,362	22,526,457	40,843	22,567,300
%	93.3%	5.7%	0.9%	99.8%	0.2%	100.0%
<i>Added Value</i>						
Value in millions €	1,179,476	1,071,196	1,087,613	3,338,286	2,956,544	6,294,829
%	18.7%	17.0%	17.3%	53.0%	47.0%	100.0%
<i>Employment</i>						
Number	36,988,539	25,313,066	20,130,548	82,432,093	44,358,284	126,790,377
%	29.2%	20.0%	15.9%	65.0%	35.0%	100.0%

Source: Authors' work – based on European Commission (2021)

Furthermore, SMEs mostly keep track with modern trends and are oriented toward the implementation of concepts such as corporate social responsibility and other key priorities (e.g. orientation towards other „green“ and „smart“ aspects, etc.). Through the networking of knowledge and production, SMEs become drivers of the industrial environment and represent a source of innovative ideas. On the other hand, SMEs are more sensitive to economic and global shocks (Covid-19, political instabilities, conflicts, etc.), which require their support through various national and international action and strategic plans.

In the context of global economic trends and dynamic changes in the world economy, SMEs are facing a large number of challenges. Image 1. highlights the most important ones: Availability of skilled staff and experienced managers; Finding customers; Costs of production or labour; Regulation; Competition and Access to finance.

Figure 1: The most important problems faced by euro area companies (% of respondents)

Note: All enterprises. The figures refer to the surveys conducted from April 2018-September 2018 to October 2021-March 2022.

Source: Retrieved from European Central Bank (2022)

Although it is not the primary ranked issue, special attention is often focused on the access to financing (especially in some parts of Europe). SMEs mostly rely on 'traditional' funding sources (loans, incentives, bank guarantees, etc.); access to which is often very complex and marked by uncertainty and certain risks. On the other hand, recent global trends characterized by negative repercussions associated with the Covid-19 pandemics are increasingly emphasizing alternative funding sources, including especially crowdfunding. Yet, despite its increasing presence, there is still a lack of knowledge and awareness among the population and entrepreneurs about its fundamental characteristics and potential advantages. Here lies the main research problem of the paper. Therefore, the purpose of this scientific research is to identify challenges and perspectives of the implementation of the 'crowdfunding concept' into the European economy. The main supporting goals of the research were to point out the theoretical aspects of crowdfunding and to conduct an analysis based on available quantitative indicators.

The paper consists of six mutually consecutive and coherent chapters. After the introductory considerations and the definition of key research elements, the paper continues with the presentation of the methodology. The paper continues with a presentation of key theoretical insights that elaborate closely the concept of 'crowdfunding' and its key characteristics. The focal part of the paper is an analysis of key indicators related to crowdfunding, at the EU level, which enabled a scientific determination of the main challenges and perspectives related to the main research point. The paper ends with a conclusion, which represents the synthesis of the key knowledge featured within the research.

2. Research methodology

The research included an empirical analysis of crowdfunding in the European Union. It covered the framework period from 2013 to 2022; depending on the availability of data. The corresponding data was collected from relevant statistical databases and thematic websites monitoring crowdfunding activities in the EU, and globally. Thereat, for the purpose of

presenting the 'situation' with crowdfunding in the EU, the paper presents the following key indicators: (1) Structure of alternative financing in the EU; (2) Growth rates of crowdfunding transactions in the EU; (3) Average values of crowdfunding campaigns in the EU; (4) Successful crowdfunding campaigns in the EU; (5) Transaction values of reward-based crowdfunding; (6) Transaction values of donation-based crowdfunding; (7) Transaction values of equity-based crowdfunding; (8) Number of crowdfunding platforms in selected EU Member States; (9) Global distribution of the crowdfunding market.

3. Theoretical foundations of crowdfunding

Crowdfunding represents an alternative way of financing businesses and innovative business ventures, which takes place by using an online platform, and it seeks to include as many participants as possible by paying the final amount necessary for the implementation of the business project (this kind of financing can also be applied to finance bigger projects). The alternative character of crowdfunding stems from the fact that it does not originate from the traditional financial system. On the other hand, the system transparency is provided through the visibility of the funds raised and the number of contributors in real time (Shneor and Vik, 2020). Although mostly defined as a new and modern concept, the presence of crowdfunding can be found in some key historical occurrences. The earlier presence of crowdfunding can be affirmed by the fact that many authors have funded their books for centuries with subscriptions before publishing them. Also, war bonds represent a model of joint financing during the duration of military conflicts. A concrete example of the application of the method that includes crowdfunding was the construction of the Statue of Liberty in 1885, when the US Government was unable to afford the construction of a pedestal for the statue on Liberty Island. On that occasion, the editor of the New York Times, Joseph Pulitzer organized a public campaign by inviting citizens through newspapers to donate money. Over 160,000 people responded to his call and the necessary financial resources were collected (BBC News, 2013).

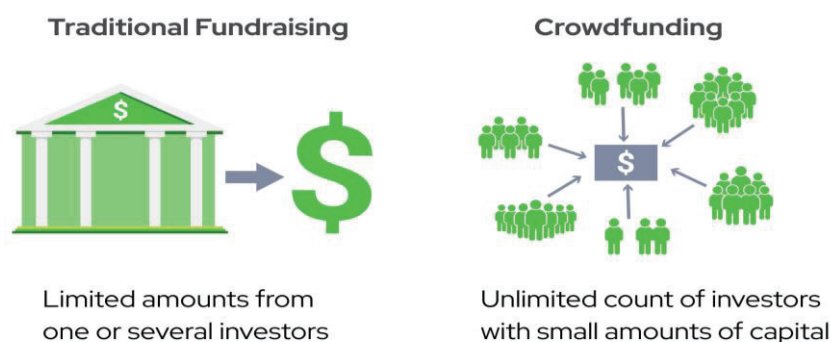
Crowdfunding in an online form was initiated with a great merit of the Nobel Prize winner in economics, Muhammad Junus, who accomplished his idea and managed to provide micro-donations to farmers in India and allow them to start with their first entrepreneurial ventures. On the occasion of this event, in 2005 a platform under the name Kiva was created among the first, through which small amounts could have been allocated to individuals or organizations from third world countries in order to obtain funds for the launch of their own business (The Nobel Peace Prize, 2021). Furthermore, there is a certainty that the first crowdfunding project was carried out online in 1997 by the rock band *Marrillion*, who wanted to raise funds for a tour after the release of their new album.

Compared to the traditional ways of enterprise financing, crowdfunding covers the validation of the business idea before it appears on the market, and it does not require collateral for the access to the capital. As one of the most important positive sides of crowdfunding, it is possible to highlight the risk dispersion among the owner of a business idea and the investors. In doing so, by developing a business plan, the owner of a business idea can elaborate on the calculation of the whole project in detail and accurately determine the required amount. If the amount is not collected, the owner of the idea will not be exposed to the business endeavour. On the other hand, the risk dispersion of investors is manifested through the small amounts whose loss potential investors can afford. Also, for the success of the campaign marketing is the key, while the use of crowdfunding simultaneously enables the collection of funds and the promotion of a business idea that, if the campaign achieves a positive outcome, will get its place on the market (Government of the Republic of Croatia, 2017). Online platforms for raising funds operate on the principle of 'everything or nothing' in the vast majority of cases. This means that the

subjects who receive the financial resources will only receive the money when they reach a specific goal. Otherwise, if the goal is not achieved, each investor will receive back the amount provided (European Commission, 2015). Crowdfunding campaigns often represent a way of establishing a community that binds to the offer of the promoter of an innovative business idea. By using an Internet platform, an efficient market overview can be obtained, as well as contacts with new clients (Croinvest, 2020).

The clearest comparison of traditional financing methods and financing through crowdfunding is shown on Figure 2. The most important differentiating aspect is the fact that traditional financing methods enable the collection of limited funds from a small number of investors, while crowdfunding enables the grouping of an unlimited number of investors with smaller amounts of payments.

Figure 2: Comparison of the traditional and alternative forms of funding



Source: European Commission (2023)

Generally, crowdfunding benefits can be divided into financial and non-financial. In terms of financial benefits, this financing method enables a large number of users to connect, including with other companies. This creates opportunities for many potential investors to meet and get information about the business ideas which need financial support for their implementation. Likewise, creators of business ideas can access and acquire a lot of useful information and advice that will serve them in the application of better practices and the achievement of better results in the future.

In terms of non-financial benefits, it is necessary to start with the validation of the business idea, which emphasizes the convenience of 'checking' the idea. That is, the proof of interest and demand of individuals who are willing to invest in goods or services that need financial support in order to achieve their placement on the market. If a large group of investors express interest in the business idea and decide to support it financially, it is an indicator and proof of a strong market interest. Crowdfunding can also create a very good reputation and trust by other entities that can offer financial support. For example, if the campaign shows to be successful, and if additional assistance is required with other forms of financing such as banks, business angels, entrepreneurial capital, it is more likely that it will be supported because the great interest of the investors creates the impression of a less risky client and therefore better conditions for issuing funding can be achieved. Once more, among the non-financial benefits, there is the access to a group of potential investors, which involves addressing a large group of individuals and an interaction that can bring free and significant feedback, as well as the establishment of acquaintances that can offer valuable experience and expertise. Finally, another non-financial benefit of crowdfunding is that they usually are a strong marketing tool,

since crowdfunding based on rewards and equity can be efficient ways to present a new product, a new company or simply to become a more visible financing method to potential users of crowdfunding (Cambridge Center for Alternative Finance, 2020).

As already suggested, there are various types of crowdfunding, and Table 2 presents the most important and frequent ones, according to the European Commission.

Table 2: Main types of crowdfunding

Peer-to-peer lending
Equity crowdfunding
Rewards-based crowdfunding
Donation-based crowdfunding
Profit-sharing / revenue-sharing
Debt-securities crowdfunding
Hybrid models

Source: European Commission (2023)

Peer-to-peer lending represents a type of crowdfunding which resembles the traditional forms of funding (i.e. those based on taking loans from commercial banks), as it is basically a method of collective borrowing, with the only difference being the number of lenders/investors. Instead of obtaining funding from just one source, entrepreneurs have the opportunity to borrow directly from a large number of individuals; a group of lenders who often offer loans with certain interest rates. Borrowers are connected with the lenders through an Internet platform, and have the right to agree to such a loan offer with the lowest interest rates. The fundamental feature of this type of crowdfunding include the possibility of greater flexibility with interest rates. This is especially true for campaigns that have gained popularity and are more likely to experience the case of competition among their investors, which are encouraged to offer lower interest rates to direct attention of the campaign promoter. The next characteristic relates to the size of the loans, which can greatly differ. The minimum loan amount can be very modest, allowing a large number of creditors to associate. Loans are repaid on the principle of direct payment to platforms that further distribute payments to the lenders, as it is in the case of traditional forms of financing (such as a bank loan).

Equity crowdfunding is based on the sale of shares in the undertaking to a large number of potential investors in exchange for their investment. The basic difference from the traditional financing method is in the number of investors with which they can establish a sort of 'partnership', i.e. an equity-based crowdfunding allows the promoter to relate to a large number of investors, which might represent already existing or future clients. The main characteristics of this type of crowdfunding derive from the determination of ('partnership') conditions, the decisions about the shares that are intended to be sold, and the determination of prices and rewards for investors. The campaign promoter has to prove that he/she is ready for the investment, which involves preparing a business plan and a financial projection.

In the case of the *reward-based crowdfunding*, investors donate specific amounts for the realization of a particular business idea, and they expect that they will receive a non-financial reward in the future, as a substitution for their own contribution to the project. Most often they expect rewards in the form of goods or services. This type of crowdfunding is often used by the creators of business ideas that offer a unique service or product in exchange for investment. In such a way, companies are allowed to access orders already received and a guaranteed money

supply before launching the business itself, as well as to interested individuals for the product before its placement on the market. The main feature of the reward-based crowdfunding is that the funds raised during the campaign do not necessarily have to be returned; it is only necessary to deliver the agreed goods or services within the scheduled deadline. This type of crowdfunding is most suitable for financing innovative products or services that attract significant consumer attention, but it is less applicable when it comes to complex business ideas and products.

Donation-based crowdfunding stems from a situation in which investors pay donations of a lesser amount to raise the necessary financial resources for the implementation of a specific project, while not bringing benefits of a material or financial nature to the investors. This type of crowdfunding is most commonly used in humanitarian campaigns that seek to help individuals in difficult life situations. In the case of a *profit-sharing / revenue-sharing*, the subjects that obtain the financial resources agree to divide the future profit or revenue with a group of investors with the aim of raising financial resources in the present. *Debt-securities crowdfunding* is characterized by an investment in debentures issued by a company. *Hybrid models* imply the creation of opportunities for entities to access financial means by combining elements of several types of crowdfunding, in order to adjust and facilitate the process of accomplishment of the ultimate project goal(s).

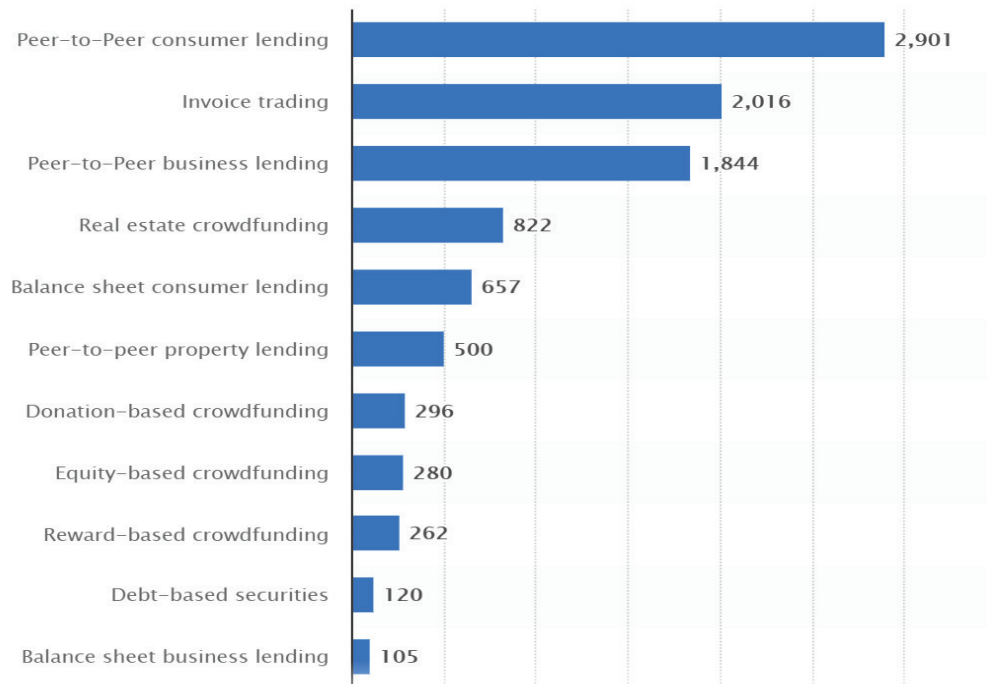
Besides the quality of the business idea, the most important segment of the campaign implementation is a crowdfunding platform, which has the purpose of connecting the initiators of projects ('promoters') with investors and the development of the business idea marketing. The most popular global crowdfunding platforms include Kickstarter, Indiegogo and RocketHub; which are based on rewards to investors who supported the project. While the famous platforms based on equity crowdfunding are: Crowdcube, Crowdfunder, Sellaband. Some of these platforms function on the principle that the business idea promoter cannot keep the funds raised if the campaign results in a failure, while some of them allow the campaign promoters to retain the collected funds, regardless of the fact that the targeted amount was not achieved during the campaign. In such case, they are obliged to pay a specific fee to the platform on which the crowdfunding campaign was carried out (Bago and Pilipović, 2016). Crowdfunding platforms are obliged to carry out a detailed analysis of the borrowing requests for the purpose of protecting the interests of investors; most often by demanding regular financial statements and continuous care about business records.

4. Analysis of crowdfunding in the EU

The alternative financing market has increased since 2013 and in 2020 its value was \$ 20.6 billion (Statista (1), 2023). If the geographical concentration at the European level is considered, it is possible to conclude that the use of alternative financing methods is mostly concentrated in the United Kingdom, Italy, France, Germany and the Nordic countries. This distribution is not a surprise, keeping in mind the significance and the level of development of financial markets in these countries, as well as their constant implementation of innovations (Statista (3), 2023).

Available data regarding the structure of alternative financing in the EU suggests that the biggest shares relate to Peer-to-Peer Consumer Lending, Invoice trading and Peer-to-Peer Business Lending (Figure 3). However, the data also indicates a significant proportion of crowdfunding, whose total value in 2020 was \$ 1.66 billion. Half of this figure concerns real estate crowdfunding, while the rest is nearly equally distributed among donation-based, equity-based and reward-based crowdfunding.

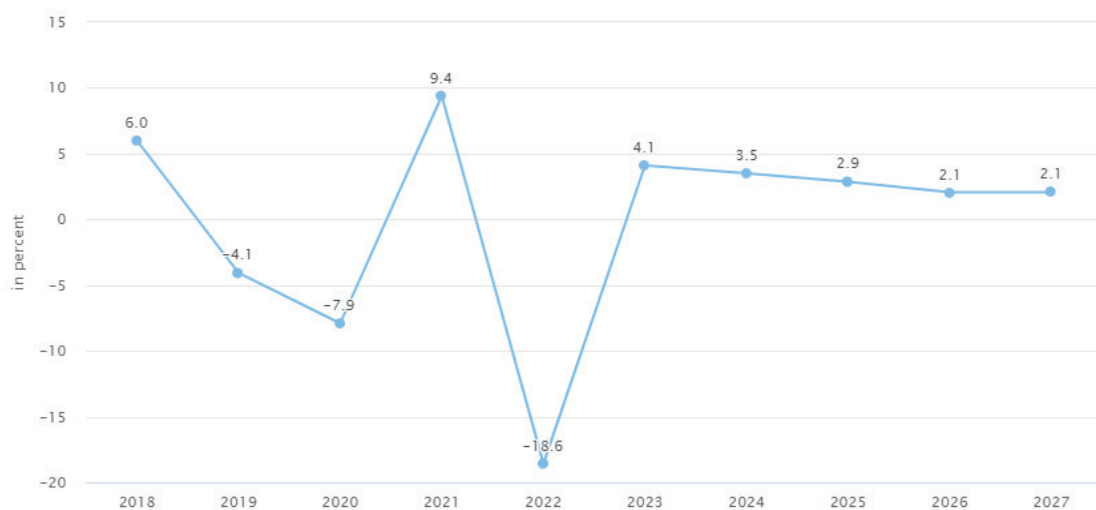
Figure 3: Structure of Alternative Financing in the EU in 2020 (in millions of US dollars)



Source: Retrieved from Statista (2), 2023

After an initial growth of crowdfunding transaction values in the EU in 2018 (+ 6.0%), the dynamics switched in 2019 and 2020, with negative rates of - 4.1% and - 7.9% (Figure 4). An optimistic bounce followed in 2021 (+ 9.4%), but in 2022 a drastic drop occurred due to significant new and unforeseen political and economic disturbances (- 18.6%). The projections indicate a recovery of growth of transaction values in the period by 2027, although with slower and stable rates. This supports the thesis that the financial climate after the economic crisis caused by the recent pandemic has led to the development of the group financing culture.

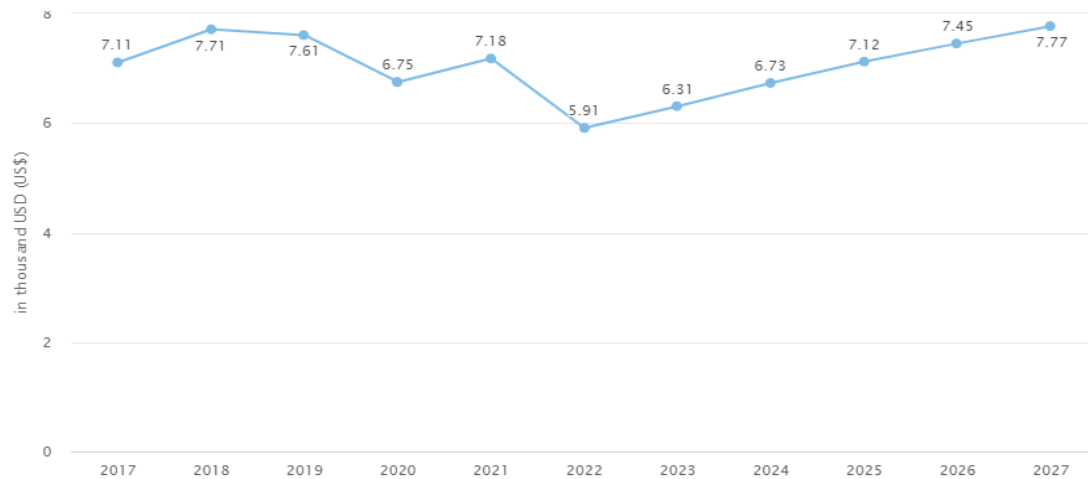
Figure 4: Transaction Value Growth rates of crowdfunding transactions in the EU during the 2018-2022 period and predictions for the 2023-2027 period (%)



Source: Retrieved from Statista (4), 2023

The average value of the realized crowdfunding campaigns in the EU in 2022 amounted to € 5,900, which is the lowest value since 2017. Projections, however, indicate an expected continuous increase in the average value of campaigns up to € 7.700 in 2027 (Figure 5).

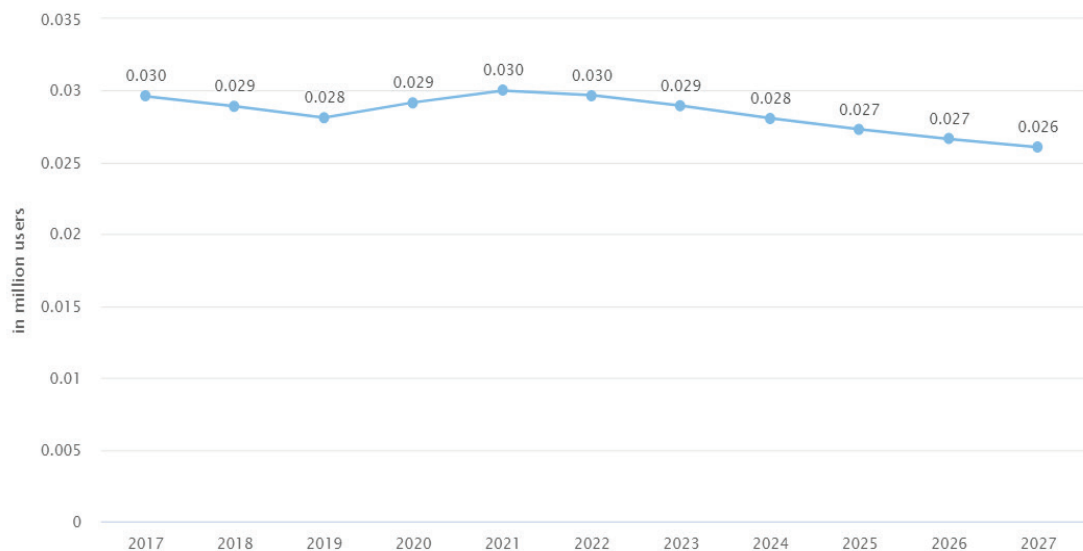
Figure 5: Average Funding per Campaign of crowdfunding transactions in the EU during the 2018-2022 period and predictions for the 2023-2027 period (in ,000 of USD)



Source: Retrieved from Statista (4), 2023

Figure 6 data indicates that from 2013 to 2020, approximately 30,000 users participated in successful crowdfunding campaigns at the EU level. In the period until 2027, the expected number might drop, approximately to 26,000 users annually.

Figure 6: Successful Crowdfunding Campaigns in the EU during the 2018-2022 period and predictions for the 2023-2027 period (Number of Users; in millions)



Source: Retrieved from Statista (4), 2023

The following paragraphs relate to the trends describing the values of most important types of crowdfunding in the EU. As first, figure 7 displays values of reward-based crowdfunding during

the period 2013 – 2020. These crowdfunding achieved a triple increase of values during the observed period.

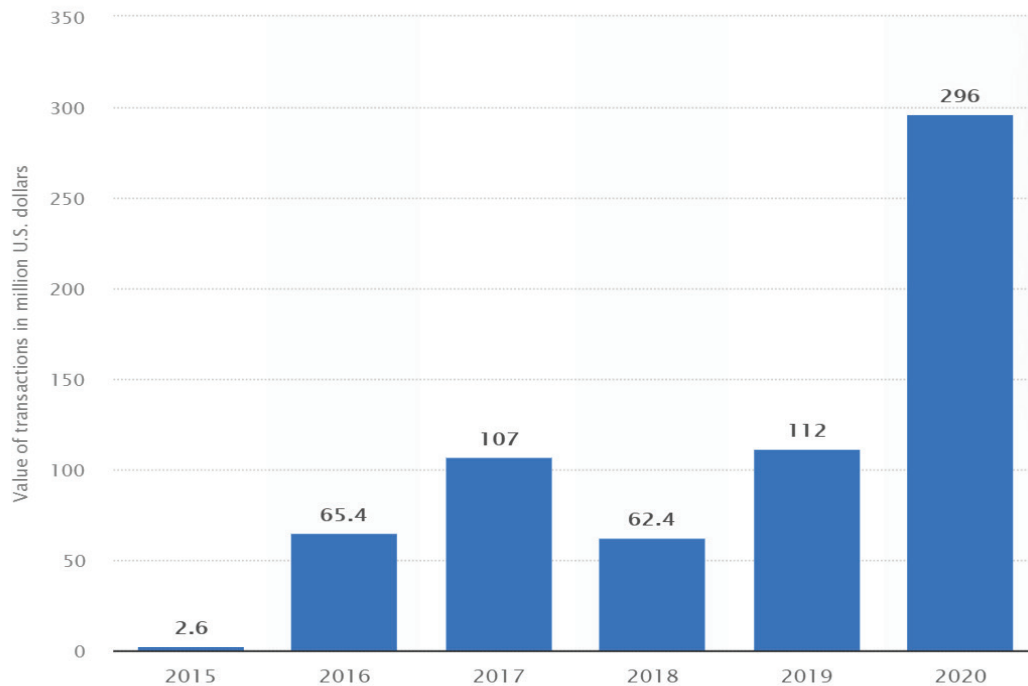
Figure 7: Reward-based crowdfunding transaction value in Europe (excluding UK) 2013 - 2020 (in millions of US dollars)



Source: Retrieved from Statista (5), 2023

Furthermore, during the period 2015 to 2020, the value of donation-based crowdfunding increased significantly in the EU. Specifically, from the initial value of USD 2.6 million in 2015, in 2020 the value was already USD 296 million; which is an increase of 118 times. It is clear that this type of crowdfunding activity recorded the largest ascent during the observed period, and it became the most attractive to potential investors (Figure 8).

Figure 8: Donation-based crowdfunding transaction value in Europe (excluding UK) 2015 - 2020 (in millions of US dollars)



Source: Retrieved from Statista (6), 2023

As in the case of other forms of crowdfunding, the value of equity-based crowdfunding has increased more than four times in the EU during the observed period of just seven years (Figure 9). In 2020 the materialized value was USD 280 million.

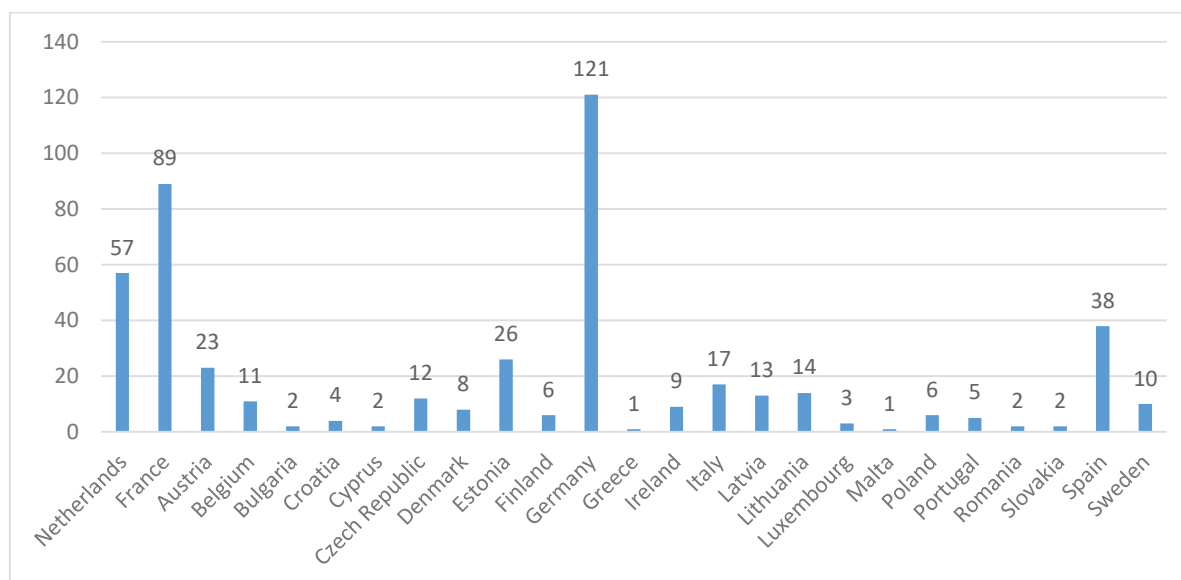
Figure 9: Equity-based crowdfunding transaction value in Europe (excluding UK) 2013-2020 (in millions of US dollars)



Source: Retrieved from Statista (7), 2023

As already mentioned, the most important way of capitalizing crowdfunding ideas takes place thanks to appropriate crowdfunding platforms. The activity on platforms is, among other things, determined by the legislation of each country, and therefore specific differences between EU Member States exist. The largest number of platforms currently operates in Germany, France and the Netherlands (Figure 10). Other EU Member States have noticeably lower platforms.

Figure 10: Number of crowdfunding platforms in EU Member States (2023)



Note: Data for Slovenia and Hungary was not retrieved.

Source: Authors' work according to Crowdspace, 2023

Table 3 data indicates that leading players on the world scene of crowdfunding in 2018 were certainly a dominating China (with more than 70%), and only then the United States (20%) and the United Kingdom (3.4%). All other countries represented less than 0.6% of the global market. However, EU Member States such as The Netherlands, Germany and France were positioned in the global Top 10. Other seven EU Member States were also positioned among the top 30 in the world. Generally, it is evident that crowdfunding at a global level brings about continuous and mostly high growth rates; with the exception of China. Excluding China, for instance, the global crowdfunding volumes grew by nearly 50% between 2017 and 2018. Evidently, this suggests a more strengthened role as a driver of economic activities in the future, especially in countries more affected by the economic crisis and other market instabilities.

Table 3: Global TOP 30 Crowdfunding Volume by Country (2018)

Country	Rank 2018 (and 2017)	Volume (,000,000 USD)	Market Share (%)	Yearly Growth Rate (%)
China	1 (1)	215,396.39	70.73	- 39.88
USA	2 (2)	61,134.36	20.07	42.93
United Kingdom	3 (3)	10,367.89	3.4	32.04
Netherlands	4 (10)	1,806.30	0.59	480.72
Indonesia	5 (30)	1,451.23	0.48	1711.43
Germany	6 (8)	1,276.20	0.42	92.90
Australia	7 (4)	1,166.55	0.38	1.57

Country	Rank 2018 (and 2017)	Volume (,000,000 USD)	Market Share (%)	Yearly Growth Rate (%)
Japan	8 (9)	1,074.76	0.35	208.26
France	9 (7)	933.13	0.31	26.98
Canada	10 (6)	909.26	0.30	4.80
South Korea	11 (5)	753.38	0.25	- 33.32
Israel	12 (New)	725.83	0.24	145.21
Brazil	13 (12)	672.19	0.22	149.30
India	14 (13)	547.43	0.18	103.82
Italy	15 (15)	532.58	0.17	99.16
Singapore	16 (18)	499.65	0.16	162.12
Spain	17 (20)	419.04	0.14	134.99
Finland	18 (16)	379.19	0.12	73.44
Poland	19 (23)	333.29	0.11	110.55
Sweden	20 (17)	298.04	0.10	36.58
Chile	21 (22)	289.26	0.09	91.95
New Zealand	22 (14)	276.21	0.09	5.57
Latvia	23 (26)	254.54	0.08	148.45
Mexico	24 (21)	233.39	0.08	54.47
Georgia	25 (19)	193.02	0.06	0.25
Colombia	26 (New)	192.47	0.06	280.15
Armenia	27 (New)	184.03	0.06	8227.24
Estonia	28 (28)	159.53	0.05	76.72
Peru	29 (New)	158.46	0.05	441.40
Denmark	30 (New)	144.75	0.05	232.98
Total Market Value (all countries)		304,531.53	-	- 27.32

Source: P2PMarketdata, 2023

Based on the analysed data, it is evident that crowdfunding significantly affects the possibility of growth and development of small and medium-sized enterprises in Europe, which results in a positive impact on their success. Moreover, the establishment of a joint regulatory framework allows further expansion of business beyond the EU borders. Furthermore, the analysis suggests that crowdfunding is getting accepted by the European Union as a significant alternative source of funding, bringing new investments and a belief in its high potential. Therefore, crowdfunding is expected to bring a positive effect on economic growth, jobs and innovation by providing additional financing options, especially for innovative small and medium-sized enterprises and start-ups. Crowdfunding can provide necessary financial resources to micro, small and medium-sized enterprises, as basically a substitute for traditional funding sources, especially during economic hardship such as during the Covid-19 pandemic period. It is a necessity for entrepreneurs, especially during the initial stages of their business development – a commonly quite financially demanding stage (Paštrović, 2022).

5. Challenges and perspectives of crowdfunding in the EU

Perhaps the most significant group of challenges for the further implementation of crowdfunding at the EU level implies the implementation of an efficient legislative framework. The crowdfunding process includes: (1) The owner of a business project; (2) The Internet platform, which is used to present the business idea and collect the necessary capital; and (3) The investors – a group of individuals interested in financial support to suggested business ideas. Considering the interaction of these participants of the process, a stable legal regulation is essential to ensure a proper use of crowdfunding at the national level, but also at the European Union level (Government of the Republic of Croatia, 2017).

Joint European legal regulation was not established during the previous periods for the provision of crowdfunding services. Therefore, this resulted in the establishment of different sets of rules in each EU Member State, which is not in accordance with the Markets in Financial Instruments Directive (MiFID). This specifically is a disadvantage that represents an obstacle to the provision of cross-border financial services. The impact of an unmatched regulatory framework for the implementation of group financing has led to the underdevelopment of this alternative financial market in the European area. The backwardness is clearly notable when comparing the European group funding market with the American (USA) and the Chinese market. By putting into force the new regulation on the group financial support, clear sets of rules related to all crowdfunding providers in the European area were defined. Likewise, the term ‘group financial support’ was set as a: “Reconciliation of investors' interests and business project initiators to finance business using crowdfunding platforms”. The introduction of this Regulation makes it easier to approve loans and placement of securities (Hedman, 2021).

The introduction of the Regulation for these alternative forms of funding will enable the provision of services exclusively to platforms that have been licensed to work. Licenses will be issued by the supervisory authorities of the Member State where the service provider has been established. Licensed crowdfunding providers are obliged to adhere to certain rules and regulations related to this method of acquiring financial resources. Rules include, for instance, the evaluation of the capacity of potential investors, as well as the possibility of preliminary contracts which allow investors to (re)consider their decisions on investments and the obligation to publish a rate of non-fulfilment of obligations (Official Journal of the European Union, 2020).

The Crowdfunding Directive doubles the threshold for the mandatory preparation of the prospectus (EUR 5 million per year) for campaign promoters, i.e. for the entrepreneurial ideas, which allows them to raise funds at the European Union level. At the same time, the crowdfunding providers who own a license obtain the possibility of accessing other countries within the European Union, as long as they inform the home-country regulatory body in advance. The new Regulation is focused on the process of group financing on platforms, with the aim of ensuring the appropriate operations which would be carried out in the best interest of the investor. It sets up high standards related to the protection of investors and establish collective prudential criteria and criteria in the transparency domain. Furthermore, the new regulation provides for penalties for irregularities and non-compliance with the rules, and explicitly states that the initiator of the business project cannot have a business establishment in a “third” high-risk country and that he/she must warn investors of potential risks that may occur during the participation in the project.

The European Commission (2023) has identified the key challenges of further progress of crowdfunding in the EU and has determined nine key areas: (1) There is no guarantee that the defined goal will be achieved; (2) Intellectual property becomes public; (3) Underestimation of costs; (4) Damage to reputation; (5) Disclosure and legal requirements; (6) Violation of laws; (7) Platform problems; (8) Problems with liability towards investors and with investor dynamics; and (9) Investors who want to leave the project.

One of the possible dilemmas that could occur in the near future within the alternative financial market is the situation where several (or numerous) platforms intended for group financial support will meet the pressure of local ideologies that advocate the ‘democratization’ of finances and a fairer re-distribution of resources within the society, which could be achieved through these platforms. This goes against the ideology of financial organizations and larger IT corporations, which offer far more professional services as financial intermediaries. For this reason, it is necessary to hold a balance between hyper-professionalism and hyper-idealism, as the prevalence of one of these sides may cause a rollback to a lower level of ‘traditional financial institutions’ or it may bring to amateurism, which is not resistant enough to cope with stronger competitive players in the financial market (Greenberg, 2019).

Although crowdfunding is considered as only one smaller part of the alternative financial industry, its growth of value in recent years, the introduction of regulatory support, but also an increased public interest, have all brought more attention of traditional financial entities that can feel threatened by the alternative financial industry, also because they follow up digitalization trends and provide better conditions for users. The current stance is that the platforms intended for group financing can compensate for the existing financing products and complement them where traditional institutions have not fully been utilized (Haddad and Hornuf, 2019.).

The aforementioned form of cooperation, as well as the connection between traditional and alternative financing forms can be of mutual benefit. It has been proven that a large number of alternative forms of financing have been modelled according to more traditional financial instruments. Such forms of cooperation would ensure more legitimacy for the alternative financial industry, as well as more public confidence and timely available funds needed for doing business. Nevertheless, such a relationship could bring an excessive dependency on traditional financial institutions. There are risks that traditional institutions could bring a different perspective on this form of cooperation and, based on the partners’ mistakes, build their own platforms which would compete with the alternative financial industry in the future (Shneor and Vik, 2020).

Group financing platforms can apply a strategy that will focus on the quantity instead of the quality of the campaigns. That is, they may be tempted to support a larger number of campaigns with the aim of bigger profits, neglecting the quality of the campaigns they should implement. Such a compromise may be justified to a certain extent, but its excessive use can lead to a waning of reputation of the platform itself, as well as the entire industry of alternative funding. With the development of alternative ways of raising finances on the market, an increasing number of competitive platforms for group financing occurs. In parallel, there is an increasing need to work in accordance with regulations, as well as to adapt to technological developments, which leads to increasing costs of keeping and providing services to the users of the platforms. Such conditions create pressure for the crowdfunding platform managers, prompting rapid reactions in order to survive on the market. It is necessary to make efforts in the field of research and development in order to achieve an effective, rational and automated process, and it is also

necessary to dedicate more attention to the quality of overall services and customer support tools. If group financing platforms do not focus enough on innovation and system development, they could be faced with the integration of similar software solutions and systems led by traditional financial services providers, such as an upgraded form of online banking (Cambridge Center for Alternative Finance, 2020).

Although crowdfunding is increasingly represented in the business and overall community, the general public is still not sufficiently informed about the principles of the alternative financial industry. Because it is a relatively new phenomenon in the financial market, many are not familiar with the models of group financing, as well as with the associated potential risks. Education and dissemination of public awareness, besides attracting more users of this method of acquiring funding, becomes an important and indispensable segment on which its further development depends, but also the survival of group financing as a part of the alternative financial industry (Shneor and Vik, 2020).

6. Conclusion

Small and medium-sized enterprises are recognized as a generator of positive trends in the European economy, primarily because of their abundance and contributions to the creation of employment and added value. Although the most numerous, the SMEs are the most sensitive category to economic and social changes, which requires building more strength of SMEs in order to assure their resistance and survival. SMEs are faced with a large number of challenges, among which the access to financial resources is one of the most significant. In the conditions of the omnipresent digitalization of businesses, new, alternative ways of financing companies are developing; which occupy an increasing market share. Thereat, it is definitely necessary to highlight crowdfunding as one of the most represented and most popular ways of alternative financing of entrepreneurial ventures.

The research confirmed the growing importance of crowdfunding as an instrument of financing entrepreneurial ventures in the EU. So far, the emphasis was given to leading countries, such as those which are economically most powerful (Germany, France, etc.), while in other countries (especially New Member States in Central and Eastern Europe) crowdfunding is still at a relatively low level. This situation derives from the lack of knowledge and awareness of individuals and entrepreneurs in these countries about the benefits of this type of alternative financing, which is certainly a huge challenge for the future period. Besides that, as the key challenges of further implementation of crowdfunding in Europe, it is possible to identify: (1) The broad implementation of unified legislative regulations; (2) The training of individuals and entrepreneurs; and (3) All activities related to reconciliation of differences between traditional and alternative ways of financing. Future research should focus on the methods of spreading awareness and the possibilities of implementing the concept of crowdfunding in the new and less developed Member States of the EU, as well as the quantification of effects of successfully conducted campaigns related to the overall economic performances of crowdfunding projects.

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A scientific paper

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SUSTAINABILITY OF THE PENSION SYSTEM IN THE REPUBLIC OF CROATIA - THE INFLUENCE OF ECONOMIC FACTORS AND THE ATTITUDES OF THE SYSTEM USERS

ABSTRACT

The aim of this paper is to analyze the efficiency and sustainability of the existing pension insurance system in the Republic of Croatia and to determine the key parameters that determine its further development. In the paper, the authors, through a comparative analysis of the pension system of the Republic of Croatia with the pension systems of individual European Union member states, investigate the compatibility of Croatian pension insurance with the European social model and the influence of economic factors on the sustainability of this system. The research methodology bases on the survey method using an online survey questionnaire. Through the conducted survey, the authors also investigate the impact of non-economic factors on the pension insurance system, that is, they obtain relevant information about the attitudes of the users of the current pension insurance system, their awareness and trust in the system. The paper presents the calculation of correlation values for individual variables from the survey questionnaire (familiarity with the pension insurance structure, user trust in the pension insurance system, user satisfaction with the income of the mandatory pension fund, reasons for non-participation in voluntary pension insurance, etc.). The authors used the Pearson's correlation coefficient (r) to calculate the correlation values. Accordingly, the obtained research results show that there is a partial familiarity of respondents with the structure of pension insurance in the Republic of Croatia, which indicates the necessity of conducting additional educational and informational programs for certain categories of the population (current and future users of the pension system). In addition, due to the respondents' partial trust in the entire current pension insurance system, it is necessary to change certain variables within the system and to improve the economic and social effects of this insurance with additional measures and activities.

Key words: *Pension system, sustainability, European social model, economic factors, non-economic factors.*

1. Introduction

Maintaining the stability of the pension insurance system is one of the fundamental problems today, both for the Republic of Croatia and for other EU member states. The pension systems are part of the system within the social policy of society. These systems are „a set of legal norms, financial and institutional arrangements that regulate the risk of age and disability“ (Puljiz, 2005). Therefore, „in almost all countries of the world, regardless of their political arrangement, they are generally the most important system of social security. A personal pension plan should give citizens a sense of security that they will be cared for, the moment that they leave the world of work. In addition to the financial basis, the pension systems are largely contributed by the maintenance of social cohesion and provide retirees with complete involvement in the social life of the community“ (Altras Penda, 2009).

Their funding is one of the fundamental factors that determines the life standard of each retirees and their financial and social security. Therefore, the level of the right that can exercise in the pension insurance system directly depends on the possibilities of its financing, ie its sources of funds.

Since the pension, system ensures the most significant social risks that can happen to everyone, such as the risk of age and disability, the importance of its stability is of great importance to the population of each country. In other words, this system is necessary for the balanced functioning of the entire society and the maintenance of its social cohesion, that is, the connection individuals and groups within society as a whole.

The aim of this paper is to analyze the efficiency and sustainability of the existing pension insurance system in the Republic of Croatia and to determine the key parameters that determine its further development. In the paper, the authors, through a comparative analysis of the pension system of the Republic of Croatia with the pension systems of individual European Union member states, investigate the compliance of the Croatian pension insurance system with the European social model and the influence of economic factors on the sustainability of this system. Accordingly, the basic hypothesis of the work is H: Maintaining the stability of the pension insurance system in the Republic of Croatia significantly depends on economic factors.

2. Literature review

„Pension is a public institute that makes citizens generate revenues when they are no longer able to economize for life. Through the pension system of insurance system, an individual part of his consumption, which he realizes during active age, delays for the future when he will be old and powerless“ (Puljiz, 2005). More accurately by evenly arranging income and consumption, the individual saves for the future.

Social protection is important in reducing poverty in as much as it allows vulnerable people to maintain or improve their living standards. The numbers of informal sector workers who have access to social benefits through institutionalized social security schemes are negligible (Adzawla, Baanni, Wontumi, 2015). Traditional social networks have also been a source of social assistance to many operators in the informal sector. Extended family members provide for the aged and the disabled, the sick and the unemployed members of the family, the new born child and the mother, the orphaned and even the complete stranger (Kumado, Gockel, 2003).

But, Schwarz (2003) noted that, the extended family is not, and was never, a perfect safety net especially when their own children are too poor to support their parents.

Primarily the purpose of a pension system is to assist households to achieve the allocations of resources in life through a life cycle (Modigliani, Muralidhar, 2004). Thus these are strategies and policies established to ensure that people in their active ages insured themselves against periods of uncertainties regarding retirement income to help create a better recruitment and holding incentives (Modigliani, Muralidhar, 2004). This pension money or pension contribution which is paid to beneficiaries is always deducted from a person's salary or voluntarily contributed during his or her active working life. This means that after people have retired from active working life, an amount of fix money can be regularly paid to these people to empower them live a meaningful life and support themselves (Adzawla, Baanni, Wontumi, 2015).

The pension insurance system consists of several sub-seats defined with regard to the types of insured, financing mode, retirement funds and pension distribution. Pension Insurance models most commonly defined based on five criteria:

- insurance of employees / universal pensions,
- public management / private management,
- required participation / voluntary participation,
- defined giving / defined contributions and
- current distribution / capitalization.

Based on the previous classification of pension systems today, the classification of these systems countries most commonly use according to the method of financing and the distribution of pension funds. The first method of collecting and distribution of pensions is the current distribution based on intergenerational solidarity, and the second way is capitalized pension funds.

The public pension financing system mainly bases on pension insurance contributions, the height of which depends on the amount of income. In case of lack of funds for funding for retirement insurance expenses, the revenues cover the lack of the state budget (Mijatović, 2006).

It is common to use the English abbreviation PAYG (Pay As You Go) for the pension system based on intergenerational solidarity. In this pension model, the paid contributions of the employed population finance retirees, and the basic principles of this system are as follows:

- 1) in the long run, funds not accumulated in order to pay for future pensions from them, but the pensions of current pensioners are financed by the employed population's contributions,
- 2) the state shall be released by the obligation to pay the retirees the funds that have been allocated in the form of pension contributions during their working life, the higher pensions are paid from the income of future generations of employees,
- 3) assuming the normal growth of the economy and maintaining demographic balance, each new generation of retirees may receive a higher pension than paid contributions during the working life (Puljiz, 2008).

Unfortunately, the third characteristic of the pension system based on the intergenerational solidarity model is often not realized, but the opposite (a decline in employees and a decline in pension pensioners) is often happening, which often leads to the crisis of this system. However, these systems certainly have certain advantages and some of them are:

- 1) easier to adjust to influencer movements and various market oscillations over capitalized pension funds,
- 2) enable the real pension increase depending on economic growth,
- 3) they can quickly built in relation to capitalized pension funds.

In addition to the said „state pension system, there are other advantages, for example: an almost complete coverage of the population by pension insurance in the European Union

countries, solidarity within and between generations, reduction of poverty in old age, and improves general social well-being“ (Miletić, 2006).

The biggest disadvantage of a pension system based on intergenerational solidarity is that it most often threatens it to reduce birth rate and the aging of the population. In such a generational imbalance, these systems are unsustainable because they are more appropriate for a full employment society.

Another way to collect and distribute pensions is capitalized pension funds related to the capitalization of pensions. Based on the principles of capitalized pension funds are as follows:

- 1) insured persons out of contributions for their future pensions,
- 2) collected contributions in funds one invest on the capital market to make profits,
- 3) insured persons receive a pension when they stop working, and retirement is included in profit on the funds invested,
- 4) an additional amount of contributions from the investment is made, it is kept in a special account for each insured, and is converted to a pension rent when termination of work,
- 5) insureds bear the risk of pension funds investment,
- 6) special organizations manage state-level funds on the principles of profitability and role security,
- 7) the individual pension depends on the accumulated amount of contributions, the profit earned and the calculation of the life expectancy at the time of retirement (Puljiz, 2008).

In accordance with the above principles, it is possible to notice the benefits and the disadvantages of capitalized pension funds. The biggest advantage of these funds, unlike the intergenerational solidarity system, is to encourage the population to be responsible and rational use of resources and savings for age during their working life. However, the biggest disadvantage of this pension system is the exposure to the pension funds of capital markets, and in accordance with the risks of investment, which is eventually borne by the insured.

Based on the clarification of these pension insurance models, it is possible to conclude that in the pension systems based on intergenerational solidarity, a component of redistribution to the poorer pensioner categories, while in capitalization of pensions, is the most important personal responsibility of the insured person to who paid contributions and capitalization manifests. „Future no pension insurance model is completely efficient, it is common that today's pension systems are a combination of different models in view of the way funding, distribution of funds, organization and management“ (Vretenar Cobović, Cobović, 2016). Accordingly, instead of one, in most countries, there are systems with multiple pension columns that function according to different ways of collecting, management and distribution of funds.

When it comes to the pension system of the Republic of Croatia, it is possible to say that it has a long tradition. The crisis of this system, which was present at the end of the period of socialism, deepened after the acquisition of independence of the Republic of Croatia and during the Homeland War. In addition to all other changes in the public pension system, in order to alleviate its defects in the second half of the 1990s, Croatia introduced personal pension accounts in the private system of capitalized insurance defined contributions that came to life in 2002 (Vukorepa, 2011; Zuber, 2010). The reforms implemented today's pension system of the Republic of Croatia is based on a mixed financing model in which there is a system with multiple pension columns instead of one. The first pillar is a mandatory pension insurance based on intergenerational solidarity, and funded by the contributions of the insured, which employers pay at a rate of 20% of the gross wage of employees. The pension insurance within the second pillar is mandatory for the insured persons provided under the Pension Insurance Act, and the holders of this insurance are mandatory pension funds. The contribution rate paid into mandatory pension funds is 5% of the gross salary of the insured. Accordingly, the insured who were under the age of 40 in 2002 and secured in both pension

columns, allocated 15% of the contributions for the first pillar and 5% contributions for the second pillar of pension insurance. The third pillar of pension insurance in the Republic of Croatia is a voluntary pension insurance based on individual capitalized savings, conducted by voluntary pension funds. In the third pillar of insurance, those insured persons who want to be further secured from the risk of age, disability and death.

However, despite the reforms implemented, today's pension insurance system in the Republic of Croatia has significant difficulties that make it difficult for it to function effectively. This is why in the continuation of the paper; the compliance of Croatian pension insurance will analyze the European social model and the impact of economic factors on the sustainability of this system.

2.1. Compliance of the pension system of the Republic of Croatia with the European pension model

The European Union seeks to build a European pension model that needs to serve as a landmark for pension reforms of other countries, and especially those that will become its new members in almost time. „Pension systems in the Union are the basis of social protection, which is increasingly used as the widest term, and covers all collective transfers systems built to protect people from social risks“ (Bijelić, 2005). Although there are significant differences between Member States, all countries ensure the payments of income to cover classic risks: age and retirement, death, disability, unemployment, etc.

Based on the above, the European Social Model based on the Charter of the Basic Social Rights of Workers of the European Economic Community (EEC) from 1989 and the 2007 European Union's basic rights, which became part of the Lisbon Treaty. Within these documents, liabilities prescribed for Member States, and the European social model marks by the following characteristics:

- 1) prohibition of any form of discrimination, based on age, gender, race, ethnic or social origin, language, religion or personal beliefs, political attitudes and belonging to the national minority,
- 2) the right of old people to a worthy and independent life and participation in social and cultural life,
- 3) the right of persons with disabilities to use measures that provide them with independence, social and professional involvement and participation for life in the community,
- 4) the right to assistance by social services that ensure protection in the case of illness, motherhood, injuries at work as well as unemployment, under the conditions of the Union and national legislation,
- 5) pension system, established as mandatory and public pension insurance, additional or vocational pension insurance and individual voluntary retirement insurance (EECZ 1989: Charter of Basic Social Rights of Workers, Journal Officiel C 325; Charter of the European Union Basic Rights 2007, Journal Officiel C 303/1).

Within the above characteristics, it is possible to see the importance of a pension system within the European social model. According to (Rismondo, 2010), the European social model has four forms: Nordic, Anglo-Saxon, Corporate Western European and South European, and the common characteristics of these forms are:

- 1) at the first level, public and mandatory pension insurance, which has been established and implemented on the basis of a law, which ensures and realizes solidarity in national framework and which guarantees its users a certain level of administration in accordance with internationally accepted standards,
- 2) on the second level, additional pension insurance, as a rule related to vocational organization,

3) on the third level, voluntary and individual insurance, left to choose each individual. Based on this distribution, and within the framework of the first pension pillar in the European Union, state pensions funds from current income based on contributions from the salaries of employees and additionally from the state budget. Unlike the first, the pension system of the second and third pillars is based on the investments of funds raised, that is, their capitalization. However, the representation of individual pension columns is not the same in all countries. The following table shows total pension revenues within three pension pillars in individual European countries. For the sake of easier comparison, those European countries that have a similar structure of the pension insurance system as the Republic of Croatia have been selected as examples (Table 1).

Table 1: Revenues from pension contributions paid in three insurance pillars (u %)

Country	First pension pillar	Second pension pillar	Third pension pillar	Country
Croatia	78%	17%	5%	100%
France	55%	26%	19%	100%
Germany	60%	24%	16%	100%
Italy	83%	12%	5%	100%
Sweden	28%	55%	17%	100%

Source: Insurance Europe, statistics report, 2021/2022, edited by authors

Based on the data in the table, it is possible to notice that the pension revenues of the first pillar occupy the highest share in total pension revenues in most observed countries. The revenue follows from the pension contributions paid in the second and third pillars. The highest revenue within the second pillar of pension insurance makes Sweden, while the dominance of the first pillar of insurance is the most represented in Italy, followed by Croatia. This distribution of revenue depends on the very structure of the pension insurance of each country, its reforms made, demographic movements, economic indicators, and the historical tradition of the individual territory of Europe.

Second pillar pension systems in the European Union represent institutions whose fundamental goal is to solve problems that occur in state pension systems, that is, the first pillar, caused by demographic and economic fluctuations. Such systems, government can establish as voluntary or as mandatory depending on the organizational form and the degree of comprehension of employees in a particular country of the Union Member. Based on the main features of the second pension pillar of pension in the Union in the table, the characteristics of this pillar display in individual European countries (Table 2).

Table 2: Characteristics of the second pillar of pension insurance

Country	Characteristics / share of second pillar pension in total payments
Croatia	Mandatory pension funds based on individual capitalized savings / 12%
France	Tariff contracts regulated mandatory insurance, and additional voluntary pension insurance for managers with capital investment / 23%
Germany	Voluntary pension funds, for capital investment, group insurance / 21%
Italy	Voluntary pension funds, mostly for managers with capital investment / 7%
Sweden	Voluntary pension funds, for the investment of capital / 52%

Source: Insurance Europe, statistics report, 2021/2022, edited by authors

In the Member States of the European Union, there are different characteristics of the second pension of pension insurance based on additional, more precisely vocational insurance. In most countries in accordance with the Union Directive (Directive 86/378/EEZ, Journal Officiel L 225; Directive 98/49/EZ, Journal Officiel L 209 and Directive 2003/41/EZ, Journal Officiel L 235) Financing takes place within pension funds and it is mostly voluntary type. The differences are mainly in the proportion of second pension in total pensioner payments. This number is the largest in Sweden, since pensions in this country pays mainly from the pension system that belongs to the second pillar. In addition, it is possible to notice the differences in the characteristics of another pillar in the Republic of Croatia compared to other observed countries. In the Republic of Croatia, the second pillar of pension insurance has an exclusive feature of mandatory and does not bases on vocational insurance. In addition, it is important to observe the forms of investment of the assets of pension funds of European countries (Table 3).

Table 3: Investing a portfolio of the second pillar pension funds

Country	The principles of investment
Croatia	- up to 32% investment in publishers' shares from the Republic of Croatia or other EU countries - up to 67% investment in state bonds of the Republic of Croatia or other European Union countries
France	- up to 15% investment in the shares of EU countries - up to 66% in European Union state bonds
Germany	- up to 30% investment in the shares of EU countries - up to 7% investment in countries out of the European Union countries - up to 77% in European Union state bonds - up to 11% of your own investment
Italy	- up to 85% investment in European Union state bonds
Sweden	- up to 57% investment in the shares of the EU countries - up to 27% investment in countries outside the European Union - up to 11% in European Union state bonds - up to 5% of your own investment

Source: Insurance Europe, statistics report, 2021/2022, edited by authors

There are significant differences in the investment of the portfolio of the pension funds of the second pillar in observed European countries. Swedish assets mainly invest in the shares and, according to this, expects a higher yield than such investment, while France, Germany, Croatia and especially Italy are more prone to investing in government bonds.

Based on the analysis conducted, it is possible to conclude that the legislation of the Croatian pension system formally aligns with the obligations arising from the European Union Directive in the field of pension insurance, but the Croatian pension system is not in accordance with the European social model within the second pension pillar. The pension system of the Republic of Croatia, based on three insurance pillars, has a mandatory pension on the second pillar by the pension funded by the use of capitalization of contributions in the personal accounts of the insured. Unlike the European vocational insurance and certain professional elements (eg. company, a group of companies, economic sector, branch) and is in most European Union countries voluntary type. In addition, economic factors significantly influence the poor development of capitalized savings in the Republic of Croatia, whose impact on the sustainability of the pension system is of utmost importance.

In accordance with the research to date, the aim of this paper is to explore and analyze the efficiency and sustainability of the existing pension system in the Republic of Croatia and to determine the key parameters that determine its distance development. The survey conducted is also investigated by the influence of non-economic factors on the pension system system, that is, they obtain relevant information on the attitudes of the users of the current pension system, their information and trust in the system.

In accordance to the subject of research and the goals set, the paper starts from the following hypotheses:

H1: There is a partial get to know the insured with the pension insurance structure in the Republic of Croatia

H2: The confidence of the insured in the entire current retirement system in the Republic of Croatia is quite flawed

H3: It is necessary to change individual variables within the pension system and additional measures and activities to improve its economic and social effects

H4: The future development of the pension system will significantly depend on economic factors (employment, wage growth, GDP).

3. Research methodology

The research methodology bases on a poll method through an on-line survey interference. The authors conducted the study in December 2022 and January 2023, on a representative sample of 762 respondents. The sample target group included employed persons in small, medium and large companies in the territory of the Republic of Croatia.

The survey conducted in order to collect relevant information on the attitudes of users of the current pension system, their information and confidence in the system. In this way, through the survey conducted, authors investigated the impact of non-economic factors on the pension system in the Republic of Croatia.

The authors structured survey questionnaire in four parts. The first part of the questionnaire was related to the research of basic sample data (gender, life age, completed professional preparations, the size of the company in which the respondent works and the form of the ownership of the company). The second and third part of the informed of the insured on the functioning of the pension system and trust in the system and the willingness to participate in certain forms of pension insurance. The fourth part of the questionnaire related to questions related to the personal attitudes of respondents on the pension system in the Republic of Croatia.

Some questions from the survey questionnaire groups according to certain target groups so that there can be any differences in the influence of non-economic factors on the pension system between the analyzed groups. The paper shows the calculation of correlation values for individual variables from the survey questionnaire (familiarize the structure of the pension insurance, the trust of the users in the pension system, the satisfaction of the beneficiaries of the compulsory pension fund, participation within the voluntary pension insurance, etc.). In addition, the relationship examined between the insured priorities analyze the business of their fund that is important to the subjects.

The authors used Pearson's correlation coefficient (r) to calculate correlation values. Famous English mathematician Karl Pearson first explained the coefficient of correlation (Hauke, Kossowski, 2011) in 1896. Pearson's correlation coefficient uses variables on the interval ladder that are in a linear relationship. The linear ratio of variables one can read from a dotted diagram and implies that the points follow and dissipate around the direction. Sometimes data

can be interconnected, but they are not in a linear relationship and then it is not possible to calculate the Pearson's correlation coefficient (Dawson, Trapp, 2004).

Pearson's correlation coefficient is indicated in lowercase (r) and can take on values from -1 to +1. The value of the correlation coefficient of 0 to 1 is a positive correlation and indicates in accordance with the growth of the value of both data groups. The value of the correlation coefficient from 0 to -1 indicates a negative correlation, that is, in accordance with the increase in the value of one variable, and the decrease in the value of the other variable. When the correlation coefficient has value 0, then it indicates the lack of linear connection, which indicates the fact that knowing the values of one variable cannot conclude the values of another variable (Ažman, Frković, Bilić-Zulle, Petrovečki, 2006).

The authors used program package Statistics when processing all the data obtained.

4. Research results and discussion

The results of the study show the results of the study aimed at collecting relevant information on the attitudes of the current pension system users, their informed and confidence in the system.

The age and sexual structure of the respondents presents Table 4.

Table 4: The age and sexual structure of the respondents

AGE LIMITS I		17-24	25-35	36-55	56-65	TOTAL
MALE	Number of respondents	74	109	111	27	321
	% gender	23.05	33.96	34.58	8.41	100%
	% age	45.40	46.98	40.22	29.67	42.13
FEMALE	Number of respondents	89	123	165	64	441
	% gender	20.18	27.89	37.41	14.52	100%
	% age	54.60	53.02	59.78	70.33	57.87
TOTAL	Number of respondents	163	232	276	91	762
	% gender	21.39	30.45	36.22	11.94	100%
	% age	100%	100%	100%	100%	100%

Source: Authors

In the total sample, authors surveyed 321 men and 441 women. More females have been surveyed in all four-age limits than men have.

Analyzing the data in the table, it is possible to notice that the largest group of respondents is made up of people between the ages of 36 to 55 (males 34.58% and females 37.41%) of the total surveyed. The next largest group consists of respondents at the age of 25 to 35 years of age, followed by respondents between the ages of 17 and 24. The total sample at least represented by respondents i between the ages of 56 to 65 years of age. This population consists of 8.41% of men and 14.52% of women.

When asked about the work experience, 76 sample respondents did not want to answer the question asked. Out of total surveyed, the most common response related to the professional is the one on completed high professional preparation. This population occupies 53.02% of the sample. The total sample of the most surveyed from Brod-Posavina County (35.65%), Osijek-Baranja County (12.11%), Sisak-Moslavina County (9.11%), Split-Dalmatia County

(5.39%) and the City of Zagreb (3.33%). In the total sample, the population of other counties participate in the range of 1% to 3%, depending on the county.

Considering the size of the company and the ownership structure, the total sample is the most surveyed employees in small businesses, while the most common is the ownership structure of companies in which they operate privately owned. In addition, the most common survey of the company is construction (43.32%) and then the processing industry (21.22%), agriculture and forestry (7.59%), education (4.44%), financial activities and insurance activities (2.10%) and other (energy energy, communal activities, traffic, trade, catering, etc.).

As part of the second group of questions, the functioning of the pension insurance system in the Republic of Croatia investigated on respondents (Table 5).

Table 5: Familiarity with the structure of the pension insurance / level of satisfaction of respondents with an existing structure

Familiarity with the structure of pension insurance	Frequency	Percent	Mean	Median	Mode	Std. Deviation	Variance
Fully known	140	18.38	2.50	2	2	2.073	4.369
Partially known	545	71.52					
Unknown	77	10.10					
TOTAL	762	100					
Level of satisfaction with an existing structure	Frequency	Percent	Mean	Median	Mode	Std. Deviation	Variance
Fully satisfactory structure	82	10.76	2.03	2	2	1.560	2.413
Partially appropriate structure	577	75.72					
Inappropriate structure	103	13.52					
TOTAL	762	100					

Source: Authors

In the total sample, as many as 71, 52% of the employee is only partially familiar with the current structure of the pension system system, indicating the need to implement additional educational and informative programs for individual categories of population (current and future stakeholders of the pension system). This would help the insured persons easier to make decisions when participating in the system, and especially within its voluntary part. In addition, 75.72% of the surveyed declared themselves partially satisfied with the functioning of the current structure, while 13.52% is extremely dissatisfied with the current functioning of the pension insurance system. Based on the pre-indicated, it is possible to confirm the H1 hypothesis.

The most common reason for the dissatisfaction of the surveyed is the inefficiency of the current system and its long-term unsustainability. In addition, 33.11% of respondents believe that state incentive funds are too small in the third pillar, and that pension funds do not achieve a large enough income. Based on these statements, it is possible to conclude that it is necessary to change individual variables within the system and that additional measures and activities should be improved with economic and social effects of pension insurance (H3 hypothesis confirmation).

The confidence of the insured in the current pension insurance system presents Table 6.

Table 6: The confidence of the insured in the current pension insurance system / the satisfaction of the insured persons with the made income of compulsory pension funds

The confidence of the insured	Frequency	Percent	Mean	Median	Mode	Std. Deviation	Variance
Complete trust	93	12.20	2.61	2	2	2.117	3.226
Partial trust	433	56.83					
No trust	236	30.97					
TOTAL	762	100					
The satisfaction of the insured person with the made income	Frequency	Percent	Mean	Median	Mode	Std. Deviation	Variance
Complete satisfaction with the made income	101	13.26	2.01	2	2	1.987	2.145
Partial satisfaction with the made income	489	64.17					
Insufficient satisfaction with the made income	172	22.57					
TOTAL	762	100					

Source: Authors

The highest percentage of respondents has partial confidence in the current pension system (56.83%), while complete confidence is only 12.20% surveyed. Based on the results obtained, it is once again possible to notice the non-effects of the current system and the importance of changing individuals of its variables, which confirm the H2 and H3 hypotheses, since the confidence of the insured in the entire pension insurance system in the Republic of Croatia is quite deficiency.

As part of the third group of questions, the participation of the insured persons into certain forms of pension insurance and their satisfaction explored threshold based on investment in pension funds. In the total sample, 81% of the insured participates in both mandatory insurance pillars, while 19% of the surveyed are insured within the first insurance pillar.

Of the total number of insured in the second pillar of insurance, 64.17% are partially satisfied with their funds, while only 13.26% are fully satisfied. Asked about the desired structure of the investment of pension funds, 689 respondents declared. Based on the data obtained, it is possible to conclude, there are no excessive deviations from the current mandatory assets investment of pension funds and the investment level that the insured would like. Mostly these are investments in government bonds and shares that portfolio mostly have Croatian pension funds. On the other hand, the result of this research is the insufficiently developed capital market in the Republic of Croatia and certain restrictions on the investment of property of mandatory pension funds that will surely change over time.

In addition, 666 respondents in the sample declared the question of participating within the third pension pillar. Of the total number of surveyed, 79.13% declared that he did not participate within the voluntary pension insurance. Other insured are members of open voluntary pension funds (16.21%) and closed voluntary pension funds (4.66%). As the basis of the reason for membership in these funds, over 80% of the respondents stated that their pension from the first and second pillars will not be sufficient and that they want to secure further for old age. The reasons for other respondents who do not participate within the third pension pillar presents Table 7.

Table 7: Reasons for non-compliance with voluntary pension insurance

The reason for non-compliance	Frequency	Percent	Mean	Median	Mode	Std. Deviation	Variance
Investments of voluntary pension funds are inefficient	331	62.81	2.37	2	1	1.277	1.339
The income of voluntary pension funds is low	77	14.61					
I have no financial resources for this type of savings	94	17.84					
I save as part of life insurance	25	4.74					
TOTAL	527	100					

Source: Authors

The most common reason for not the participation of respondents within the third pension pillar is the respondent opinions that such investments are inefficient (62.81%), while 17.84% of them do not have enough money for this type of savings. Accordingly, it is possible to conclude that the future development of the pension system will significantly depend on economic factors (especially employment and the growth of salary and GDP). Furthermore, even additional information and the education of insured on the importance of participating within the third pillar will not be sufficient if the population will not have enough money to save. This confirms the basic hypothesis of the work and hypothesis H4. Of the total surveyed, only 4.77% of respondents pay the premium insurance premiums, which is a too small percentage if the efficiency of the pension system, as well as other forms of voluntary insurance in the end.

As part of the fourth group, questions reported to answer related to the personal views of respondents on the pension system of the Republic of Croatia. Asked about the care of the insured person for their future pension amount and her sufficiency for life after retirement, 59.11% of the respondents answered that she partially cared for her future pension, while fully cared for 20.67%. Of the 692 respondents who answered this question, 20.22% of them do not care at all about their future retirement. Based on the answers obtained, it is possible to conclude that the highest percentage of insured persons only partially cares for his future pension and her sufficiency for life.

The correlation or measure of the degree of linear connection between individual essential variables for the conducted study present Tables 8 and 9. In the tables, the calculation of correlation values for individual variables from the survey questionnaire (familiarity with the pension insurance structure, user confidence in the pension insurance system, the satisfaction of users with an income of compulsory pension fund, participation under voluntary pension insurance, etc.). In addition, the relationship examines between the insured priorities to analyze the business of their fund that is important to the subjects. The authors used Pearson's correlation coefficient (r) to calculate correlation values.

Table 8: Correlation research variables

Variable	Gender	Age	Work experience	Familiarity with the pension insurance structure	Satisfaction with the existing pension insurance structure	Confidence of the insured in the pension system	Satisfaction with the pension fund's income	Participation in voluntary pension insurance	The insured's concern about the future pension
Gender	1	0.055*	0.072*	0.054*	0.027*	0.023*	0.108*	0.095*	0.011*
Age	0.055*	1	0.074*	0.136*	0.031*	0.177*	0.167*	0.145*	0.185*
Work experience	0.072*	0.074*	1	0.118*	0.049*	0.019*	0.074*	0.180*	0.333*
Familiarity with the pension insurance structure	0.054*	0.136*	0.118*	1	0.161*	0.160*	0.198*	0.044*	0.036*
Satisfaction with the existing pension insurance structure	0.027*	0.031*	0.049*	0.161*	1	0.653*	0.132*	0.050*	0.064*
Confidence of the insured in the pension system	0.023*	0.177*	0.019*	0.160*	0.653*	1	0.411*	0.045*	0.013*
Satisfaction with the pension fund's income	0.108*	0.167*	0.074*	0.198*	0.132*	0.411*	1	0.116*	0.116*
Participation in voluntary pension insurance	0.095*	0.145*	0.180*	0.044*	0.050*	0.045*	0.116*	1	0.157*
The insured's concern about the future pension	0.011*	0.185*	0.333*	0.036*	0.064*	0.013*	0.116*	0.157*	1

*Correlation is significant at the 0.01 level (2-tailed)

$0 < |r| < 0,25$ - a weak correlation between variables

$0,25 < |r| < 0,64$ - medium correlation between variables

$0,64 < |r| < 1$ - strong correlation between variables

Source: Authors

Considering the calculation of correlation values, it is possible to conclude that the results obtained indicate the existence of a positive connection between all the research variables from the survey questionnaire. But despite this, for most variables, there is only a weak strength of correlation, while a strong strength of correlation exists between the following variables (the confidence of the insured in the pension system and satisfaction with the existing pension insurance structure $r = 0.653$). The medium strength of the correlation exists between the following variables (satisfaction with the pension fund's income and the confidence of the insured in the pension system $r = 0.411$; the concern of the insured person on future pension and work experience $r = 0.333$).

The results of the research thus obtained indicate that insufficient financial income of the insured person significantly affects their participation within voluntary pension insurance. In addition, the results show that there is a need to implement additional educational and informative programs for individual population categories (current and future users of the pension system). This would help the insured persons easier to make decisions when participating in the system, and especially within its voluntary part (Table 8).

Table 9: Correlation research variables – the priorities of the insured with analyzing the business of their mandatory pension fund

Variable	Amount of fund assets	Fund income	Number of fund members	Amount of paid annual contributions	Percentage of deviation of paid contributions by year	The investment structure of the fund's assets
Amount of fund assets	1	0.679*	0.423*	0.415*	0.777*	0.369*
Fund income	0.679*	1	0.689*	0.609*	0.624*	0.519*
Number of fund members	0.423*	0.689*	1	0.577*	0.627*	0.514*
Amount of paid annual contributions	0.415*	0.609*	0.577*	1	0.669*	0.655*
Percentage of deviation of paid contributions by year	0.777*	0.624*	0.627*	0.669*	1	0.414*
The investment structure of the fund's assets	0.369*	0.519*	0.514*	0.655*	0.414*	1

*Correlation is significant at the 0.01 level (2-tailed)

$0 < |r| < 0,25$ - a weak correlation between variables

$0,25 < |r| < 0,64$ - medium correlation between variables

$0,64 < |r| < 1$ - strong correlation between variables

Source: Authors

Calculation of correlation values for the priorities of the insured persons at the analyzing business of their mandatory pension fund show the existence of a positive connection between all the research variables from the survey questionnaire. There is a medium strength of correlation between most of the studied variables, while there are no weak strengths of correlation between the variables. Between the income of the fund and the amount of the fund's assets ($r = 0.679$); the percentage of deviations of contributions paid by years and the amount of the annual contributions paid ($r = 0.669$) and the structure of the investment of the fund's assets and the amount of the annual contributions paid ($r = 0.655$) there is a strong strength of the correlation.

Based on the data in the table, it is possible to conclude that there is a considerable interest of that part of the insured person, who exclusively or at least partially take care of their future pension, for the operations of their mandatory pension funds based on the intensity of the intensity for each variable (Table 9).

Based on the results obtained research related to efficiency analysis and sustainability of the existing retirement system in the Republic of Croatia, it is possible to notice certain similarities, as well as diversity in relation to the current studies that have been published by pre-quoted authors.

Accordingly, the resulting research results show that there is a partial acquaintance of respondents with the structure of pension insurance in the Republic of Croatia, indicating the necessity of implementing additional educational and informative programs for individual population categories (current and future users of the pension system). In addition, due to the rather flawed confidence of respondents to the entire current pension system, it is necessary to change individual variables within the system and to improve the economic and social effects of this insurance. Therefore, the future development of the pension system will significantly

depend on economic factors (employment, wages growth, GDP, etc.) which confirms the basic hypothesis of the work. In contrast to the Croatian pension insurance system, in the other investigated European countries there is considerable compliance of pension insurance with the obligations arising from the European Union Directives. The Croatian pension system is not in line with the European social model within the framework of the mandatory second pillar of pension insurance, which is financed by the application of the capitalization of contributions on the personal accounts of the insured, unlike the European one, which is based on professional insurance and certain professional elements, and is of the voluntary type in the studied European countries.

In the end, based on everything previously stated, it is again possible to conclude that the weak development of capitalized savings in the Republic of Croatia is significantly influenced by economic factors whose influence on the sustainability of the pension system is extremely important.

5. Conclusion

The pension system is an extremely important part of the social security of each individual, that is, the society in which it is located. Economics significantly influences its sustainability is significantly, but more and more non-economic factors and the attitudes of the insured.

Based on the research results and on the impact of these factors on the sustainability of the pension system in the Republic of Croatia, it is possible to draw concrete conclusions and recommendations for future research.

Originally, the pension income of the first pillar occupies the largest share in the total pension income in the Republic of Croatia, while the main characteristics of the second pillar in the Republic of Croatia differ considerably from the other observed EU member states. In the Republic of Croatia, the second pillar of pension insurance has the sole feature of obligation and is not based on professional insurance. Investing the portfolio of second pillar pension funds in the Republic of Croatia is significantly different from investments in other European countries. In Croatia, these investments mainly refer to government bonds, while in the investigated European countries, a much larger part of investments refers to company shares.

Furthermore, as part of the primary research, it was observed that respondents were partially familiar with the structure of pension insurance in the Republic of Croatia, which indicates the necessity of conducting additional educational and informational programs for certain categories of the population (current and future users of the pension system). In addition, the respondents stated that they were partially satisfied with the functioning of the current pension insurance structure, and the main reasons for their dissatisfaction were the inefficiency of the current system and its long-term unsustainability. Due to the rather insufficient trust of respondents in the entire current pension insurance system, it is necessary to change certain variables within the system and to improve the economic and social effects of this insurance with additional measures and activities. Ultimately, since the majority of respondents do not participate in voluntary pension insurance (and as the main reason they state that the investments of voluntary pension funds are inefficient and that they do not have money for this type of savings), the necessity of fully harmonizing the Croatian pension system with the European social model will be in the next period of exceptional importance, as well as concern for economic development (especially employment and growth of GDP and wages) of the country, which significantly affects the efficiency of the pension system as a whole.

In addition to the aforementioned, it is important to point out that the respondents' lack of understanding of the terminology was a significant limitation when writing this paper, since part of the answer had to be ignored, as it was not relevant for further processing. Likewise,

the impossibility of accessing certain data on the pension insurance system in the Republic of Croatia limited some further investigations. In accordance with all the conclusions reached, it is very important to note that it will be necessary to project scenarios of the development of the pension system in the framework of future research and, based on them, to see what exact measures must be taken in order to maintain this system in the future.

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ENTREPRENEURIAL AND INTRAPRENEURIAL INTENTIONS IN BOSNIA AND HERZEGOVINA: A GENERATIONAL APPROACH

ABSTRACT

Present research on entrepreneurial intentions is predominantly limited to younger generations, providing no evidence of generational differences in the intentions, while the literature on intrapreneurial intentions in the context of generations is non-existent. In order to evaluate if the intentions vary across multiple generations, this study cross-examined the entrepreneurial and intrapreneurial intentions among the Baby Boomers, Generations X, Y, and Z in Bosnia and Herzegovina. Through a cross-sectional survey design, 1292 responses were collected from 18+ individuals in Bosnia and Herzegovina. To test the hypotheses, various statistical methods were utilized including Confirmatory Factor Analysis, Welch's t-test, One-way Analysis of Variance with Brown-Forsythe, Welch's F, and Least Square Difference Post Hoc tests. Both entrepreneurial and intrapreneurial intentions show significant variations across examined generations. The results for the two types of intentions are largely in line with one another, where Baby Boomers exhibit the lowest and Generation Z the highest entrepreneurial and intrapreneurial intentions compared to other cohorts. The study confirms generational differences in entrepreneurial and intrapreneurial intentions, which were only implied by previous research. In doing so, it produces several significant implications for the policymakers and business managers, all while providing an insight into the developing, post-socialist, and post-conflict economy of Bosnia and Herzegovina.

Key words: *Entrepreneurial and intrapreneurial intentions, Generational theory, Generational cohorts, Bosnia and Herzegovina.*

1. Introduction

Time brings on many changes that affect different generations of people differently. In fact, change is one of the few constants in the world. Entrepreneurship does tend to be a young

(wo)men's game (Lévesque & Minniti, 2006), and multiple studies were based on this premise. Enthralled by this thinking, researchers shifted and narrowed their focus to the younger generations representing the future workforce. Implicitly, their studies are based on the assumption that entrepreneurial intentions (EI) vary across generations. As it will be demonstrated later in this study too, this is a theoretically sound belief. However, when focusing solely on one or two generations, there is no way of knowing if the findings are unique to that generation. We tackle this problem by taking a step back and conducting an empirical evaluation of whether the differences in EI actually vary significantly across multiple generations. In doing so, the generational theory will be used.

Anchored in sociology, Generational Theory states that those who were born around the same time share the same formative experiences, which result in personal commonalities in their core values and behaviors (Mannheim, 1952; Strauss & Howe, 1992; Howe & Strauss, 2000; Thangavel et al., 2019). The formative experiences include notable social, historical, and other broad life event forces occurring during the crucial developmental periods of an individual (Schaie, 1965). The commonalities that different generations share differentiate the cohorts from one another (Sessa et al., 2007). Technically speaking, a generation can be described as a group of individuals who were born within a time frame of roughly 20 years, which is equivalent to one of the five life stages: childhood, young adulthood, midlife, and old age (Strauss & Howe, 1992). Although the boundaries between the generations are not strictly set and are pretty fluid, so much so that the variations in defined ranges may amount to several years (Reeves, 2007), in most countries around the globe, the present workforce is made up of people belonging to four distinct generations. They include Baby Boomers generation (also known as Boomers, born in 1946–1964); Generation X (Gen X, born in 1965-1980); Generation Y (Gen Y; Millennials, born in 1981–1996) and the Generation Z (Gen Z; born in 1997- the 2010s) (Dimock, 2018).

Strauss and Howe (1992) proposed that individuals who belong to the same generation share a common historical time period, similar beliefs and behaviors, and membership within a particular generational group. Current research validates the view that age is a significant factor when examining entrepreneurship (Hatak et al., 2015; Sahinidis et al., 2021). Additionally, studies have indicated that people are more inclined to initiate a new business venture between the ages of 25 and 34 (Delmar & Davidsson, 2000; Choo & Wong, 2006). Entrepreneurial intention is defined as an individual's intent to start a new business or create values for an existing one (Bird, 1988), i.e., intrapreneurship. Hatak et al. (2015) found that these intentions decline with age, which may be due to the opportunity cost of time (Nguyen, 2018) or a decrease in the risk tolerance that may come with age (Baluku et al., 2020). In fact, according to Pauceanu et al. (2019), EI peak between the ages of 20 and 25. However, focusing only on age is one-dimensional (Chaney et al., 2017). Age is an indicator not only of one's stage in life-cycle but also membership in a cohort of individuals born around the same time. Generational cohorts differ in their values, opinions, and attitudes (Cavalli, 2004) and were exposed to different environments, all impacting their intentions to act entrepreneurially (Doanh, 2021). These varying formative experiences dictate the behaviors, which is why generations differ in their behaviors (Liu et al., 2019; Okros, 2020) and are not equally likely to start a new business. Since behaviors are driven by intentions (Ajzen, 1991), it is reasonable to expect that the intentions to act entrepreneurially would also vary across generations. Thus, the issue under scrutiny in this study is if there is a reason to believe that EI and II differ across generations.

Much attention has been drawn to developed countries in research on EI and II through the prism of generational theory. While overall literature on entrepreneurship in developing countries is limited, the one examining the role of generations is nearly nonexistent. We are in dire need of additional studies from these regions (Liu et al., 2019). Apart from being a developing country, Bosnia and Herzegovina (B&H) is also an interesting example of a post-socialist and post-conflict economy. Bosnia and Herzegovina used to be a part of the centrally planned economy with a socialist regime; thus, entrepreneurial behavior was restricted. Years of socialist rule potentially created a negative orientation toward entrepreneurship. In addition, it is well-known that post-socialist countries lack positive examples of successful entrepreneurs and knowledge of what entrepreneurship is in general (Utsch et al., 1999). As a result, it is important to examine EI and II in post-socialist economies separately (Shook & Bratianu, 2010). Further, the aging workforce and the brain drain exacerbated by the post-conflict political and economic turmoil are bound to cause graver challenges for B&H. The help that government provides to entrepreneurs is often underutilized and unaligned with the needs of current and intending entrepreneurs (Henry & Treanor, 2013). Stimulating entrepreneurial and intrapreneurial activity might attract younger people to stay in the country. To effectively design policies that motivate the new generations to start a business in B&H, the government must clearly understand whether policies should be designed to reflect potential generational differences.

2. Literature review

Although EI and II are closely related concepts, they are distinct constructs (Bičo et al., 2022). As a result, this study aims to shed light on both type of intentions separately across different generational cohorts. By investigating these generational differences, the present study aims to contribute to a better understanding of how EI and II may vary across different generations.

2.1. Generational literature on entrepreneurship and II

The generational effects are primarily addressed in the intrapreneurial literature in the context of the workplace environment (Gaidhani et al., 2019) and, to a lesser degree, in the entrepreneurial orientation literature (Hamdi et al., 2021; Wasilczuk & Richert-Kazmierska, 2020; Frunzaru & Cismaru, 2018). The generational composition has several significant implications from an organizational perspective. The large body of literature that focuses on workplace characteristics of different generations (Okros, 2020; Kupperschmidt, 2000) is important to develop good work design, incentives, and organizational performance (von Bonsdorff et al., 2018; Stewart et al., 2017; Stone & Deadrick, 2015). In that regard, Cennamo and Gardner (2008) detected significant differences in work values among Baby Boomers, Gen X, and Gen Y and the increasing importance of status and freedom among younger generations. While this literature is relevant for studying II, it is not directly addressing it. The studies that address II directly in the context of generational effects are scarce, but they do indicate differences in II among generations. For example, Guerrero et al. (2019) found that Gen Y and Gen Z have more robust II than Baby Boomers and Gen X.

2.2. Generational literature on entrepreneurship and EI

Looking at the current literature on EI through generational lenses reveals that it abounds with examples of studies focusing on one generation only (Liu et al., 2019; Kusumawardhany & Dwiarta, 2020; Nurfadilah et al., 2021; Eysel & Durmaz, 2019) or two at most (Frunzaru &

Cismaru, 2018; Hamdi et al., 2021). In addition, every one of these studies focuses on the youngest generations that were just joining the workforce. Since the generational theory has increased in popularity only in recent years, it comes as no surprise that most recent literature is heavily focused on either Gen Z only or Gen Z in comparison with Gen Y. For example, Frunzaru and Cismaru (2021) examined the impact of entrepreneurial orientation and education on EI among Gen Z and Gen Y. The two were found to have a similar level of EI and entrepreneurial orientation. However, some differences between the two were detected. Namely, Gen Z does exhibit a higher need for achievement, is more open to a flexible labor market, and has lower self-efficacy. Mahmood et al. (2021), who only focused on Gen Z in Pakistan, also found that attitudes toward entrepreneurship and perceived behavioral control are correlated to EI among Gen Z while subjective norms are not. Same was confirmed by Eysel and Vatansever Durmaz (2019) for Gen Z in Turkey but only on the sample of social sciences students, while the subjective norms were also significant for natural sciences students. The older generations are rarely included in the studies. Setiobudi and Herdinata (2018) is a rare example of such a study that compared Gen X, Gen Y, and Gen Z in Indonesia and detected significant variations in EI among them.

2.3. Overall literature on entrepreneurship among generations

Young people are considered to be the backbone of society and potential entrepreneurs that may accelerate economic growth. As a result, they are prioritized over older generations when studying entrepreneurship. This approach propounds the view that the propensity for being a full-time entrepreneur peaks at 30, after which it starts dipping (Zhang & Acs, 2018). Consistently, empirical studies conducted by Reynolds et al. (2003) indicate that individuals between the ages of 25 and 34 exhibit the highest levels of EI. Additionally, Blanchflower (2004) proposes that while the probability of being an entrepreneur is greater among older individuals, the likelihood of having EI is higher among younger individuals. However, it is crucial to take into consideration that even though EI declines with age (Lévesque & Minniti, 2006), entrepreneurial opportunity increases with it (Lee & Vouchilas, 2016). In addition, by focusing on one generation only, implicitly, there is an assumption that EI varies among different generations; however, there are not enough studies reinforced by quantitative data that would support these assumed generational differences (Twenge & Campbell, 2008). As a result, it is vital to observe entrepreneurship across all generations and examine if there are statistically significant differences among multiple generational cohorts. Besides, most of the generational literature on EI is focused on developed countries with a significantly higher percentage of opportunity entrepreneurs than necessity entrepreneurs. At the same time, the situation is reversed in developing countries. Block and Wagner (2010) found that the nature of EI differs significantly between opportunity and necessity entrepreneurs, with age being one of the most significant differentiating factors. Namely, necessity entrepreneurs are significantly older than opportunity entrepreneurs. That further reinforces the belief that it is important to investigate all generations in more detail instead of focusing exclusively on the youngest ones.

2.4. Generational cohorts

Baby Boomers are committed to their work and loyal to their workplace as employers and employees (Wasilczuk & Richert-Kazmierska, 2020). They are often described as highly competitive workaholics (Strauss & Howe, 1991; Kupperschmidt, 2000), idealistic (Lancaster & Stillman, 2002), micromanagers (Crumpacker & Crumpacker, 2007) that do not like to ask for help (Lancaster & Stillman, 2002). Their careers are vital to them, and they strongly

believe in the power, hierarchical structure, and rankings (Wiedmer, 2015). Baby Boomers are less likely to change jobs, and even when dissatisfied, they are less likely to do so than Gen X (Lancaster & Stillman, 2002; Wiedmer, 2015).

Weston (2001) pointed out that Gen X is assertive and autonomous with well-developed self-control. They try to maintain a work-life balance (Coates, 2007) but still are likely to choose self-employment over a corporate job. Further, Walker et al. (2006) found that Gen X is more likely to question authority than Baby Boomers, who values the hierarchical structure. While these findings may be valid in Western countries, they may not hold in the case of countries such as B&H, which is why further studies are needed. In post-socialist countries, differences between generations that did and those that did not experience socialist regimes are significant (Frunzaru & Cismaru, 2021). In addition, Crampton and Hodge (2009) suggest that being in a war makes individuals accustomed to the chain of command and following orders. Since Baby Boomers and most Gen X in B&H experienced the war in adulthood, they may be more accustomed to the chain of command and corporate hierarchy than Gen Y and Gen Z, who either experienced war in early childhood or not at all. That is directly in line with findings by O'Connor and Raile (2015), who labeled Gen Y as the least likely to accept organizational hierarchy (compared to Baby Boomers and Gen X).

Gen Y is the first generation entirely comfortable with technology (Rauch, 2018). Globalization brought an increasing number of entrepreneurial opportunities, especially for tech-savvy people. Although some of the most prominent entrepreneurs of today are Gen Y, as a generation, they are not considered to be particularly entrepreneurial thus far. They want flexibility more than Gen X (Tapscott, 2009), freedom of self-expression and choice, yearning to work in teams, and desire constructive criticism (Solomon, 2003). They expect good salaries and benefits, some might even say disproportionate to their performance (Hill, 2002). In general, Gen Y expects extrinsic rewards and is more interested in leisure time (Twenge et al., 2010) with an external locus of control (Twenge et al., 2004). They tend to pursue meaningful careers (Yang & Guy, 2006; Lancaster & Stillman, 2002) and strongly prefer social responsibility (Ng et al., 2010). These universalistic values were found to be negatively correlated to EI (Sagiv, 2002). In addition, work-life balance is more important to Gen Y than to preceding generations (Zhang et al., 2007). All these characteristics indicate that an average person belonging to Gen Y would instead choose a corporate job over self-employment. Still, Gen Y performs well as initiators and leaders (Tapscott, 2009) and is ready to initiate change in the workplace to fulfill their needs and preferences (Solomon, 2003). As a result, while Gen Y could exhibit strong II.

Gen Y was found to be less proactive and risk-tolerant than Baby Boomers and Gen X (Erlam et al., 2018; Ensari, 2017; Simons, 2010). That is especially pronounced in Eastern Bloc countries (Wasilczuk & Richert-Kazmierska, 2020), and it can be attributed to increased innovativeness triggered by the political transformation in the 1990s. Given that B&H underwent a similar political transformation accompanied by war, we would expect that Baby Boomers and Gen X in B&H have significantly different risk tolerance than younger generations. Since being a risk lover is positively associated with EI (Yurtkoru et al., 2014), there is a compelling reason to believe that EI among Gen Y would differ from that of Baby Boomers and Gen X.

As a generation that recently joined the workforce, Gen Z values the environment that cultivates learning and mentoring opportunities. They do not believe their formal education provided the required skills and knowledge (Bridges, 2015). Still, they are fast learners, so

they require autonomy at the workplace (Bencsik et al., 2016), are more self-aware, self-reliant (Hamdi et al., 2022), and driven than any other generation before them (Merriman, 2015). Leaders reported that they experience significant difficulties in managing the younger employees (Bruce, 2013), particularly Gen Z, as the primary motivation for these individuals is no longer the monetary incentive. They value passion, flexibility, collaboration, autonomy, and trust more than previous generations (Bond, 2016). They are highly productive and goal-oriented (Merriman, 2015) and exhibit a high need for achievement (Frunzaru & Cismaru, 2021). Such achievement and power values were found to be positively correlated to EI (Sagiv, 2002), which is why they are expected to have high EI and make promising entrepreneurs in the future (Merriman, 2015). In addition, they are considered realistic about work expectations and optimistic about the future (Sawyer, 2021), which are personal characteristics positively correlated to EI (Ozaralli & Rivenburgh, 2016).

Gen Y and Gen Z are characterized as more diverse than Baby Boomers and Gen X (Guerrero et al., 2021). One of the most emphasized characteristics of Gen Z in literature is precisely their being the most diverse generational cohort ever (Chicca & Shellenbarger, 2018). While this may not be as pronounced in B&H as in Western countries, younger generations are still more diverse compared to older generations in B&H. The social media presence of Gen Y and Gen Z exposes them to more diversity (Chicca & Shellenbarger, 2018), impacting their EI positively (Guerrero et al., 2021). As a result of everything presented above, we hypothesize the following:

H1: There is a generational difference regarding EI

H2: There is a generational difference regarding EI

3. Methods

3.1. Participants and procedure

The targeted population of this study was the working age population that, according to OECD, are individuals aged 15-64. However, the population was adjusted considering that in B&H, the legal minimum to be employed is 18 years old. The participants were selected using a snowball sampling method. In particular, we have used our networks to reach the initial sample and ask them to participate in the survey together with another request to forward the survey invitation within their networks. As such, we obtained a large and divergent sample minimizing the sample bias, which may occur in the case of non-random sampling (Vandekerckhof et al., 2019).

A cross-sectional survey was designed to collect the data. It included the cover letter explaining the nature and purpose of the study and granting anonymity to participants and the questionnaire containing items used to measure the variables. Paper-and-pencil and online questionnaires were disseminated. To participate in the study, individuals had to provide their consent, submit the response, and answer each question. While filling out the questionnaire, they could quit at any point. The participants were contacted using different social media platforms, emails or in person. Besides the invitation to participate, they were provided with a Google Forms link or a physical copy of the questionnaire. In the years 2021 and 2022, 1301 responses were collected. After removing double entries and responses with incorrect information about the age, 1292 usable responses remained. Regarding the profile of participants, the average age of participants was 31, and the more of the sample were females

(58%). The average experience was 7.9 years, with 58% of those with at least an undergraduate university degree.

3.2. Measurements

Douglas and Fitzsimmons (2013) scales were used to measure EI and II. Regarding EI, the first item was adjusted for those who were students at the moment. Therefore, the original period reflected in the question was two years and was adjusted by adding a note "if you are studying, two years after graduation." In particular, EI was measured with four and II with three items. The responses were recorded on a seven-point Likert scale (ranging from very unlikely to very likely). The sample items are presented in Appendix. Regarding the generations, the initial data was collected as age and later on transformed into one of the following categories: Baby Boomers (1958-1964), Gen X (1965-1979), Gen Y (1980-1994), and Gen Z (1995-2004).

4. Analyses and results

The data analysis was performed in two stages: pretesting, including reliability and validity of data, and hypothesis testing, including one-way ANOVA with Brown-Forsythe, Welch's F, and least significant difference post hoc tests.

4.1. Pretesting

A reliability analysis based on Cronbach's alpha and confirmatory factor analysis were performed to check for the reliability and validity of EI and II. Table 1 presents the results.

Table 1: Reliability and validity indicators

Variable	Item	SFL	α	CR	AVE	$\sqrt{\text{AVE}}$	>	R
EI	EI1	0.847	0.902	0.904	0.701	0.837	>	0.646*
	EI2	0.880						
	EI3	0.772						
	EI4	0.847						
II	II1	0.849	0.921	0.923	0.800	0.895	>	0.646*
	II2	0.952						
	II3	0.880						

Note(s). SFL – Standardized factor loading; α – Cronbach's alpha; CR – Composite reliability; AVE – Average variance extracted. * $p < .001$.

Source: Authors

Table 1 suggests that EI and II measurements are reliable in both cases since Cronbach's alpha value is higher than the standard threshold of 0.70 (Taber, 2018) and composite reliability is higher than 0.60 (Hair et al., 2014). Furthermore, all standardized factor loadings and average variance extracted values are above 0.50, indicating that convergent validity has been reached (Bagozzi & Yi, 1991). Finally, regarding discriminant validity, square roots of average variance extracted values were compared to the mutual correlation coefficient between EI and II (Fornell & Larcker, 1981). Since square roots of average variance extracted values were higher than mutual correlation, there is no concern about discriminant validity. Therefore, both reliability and validity for EI and II were reached.

4.2. Hypothesis testing

Hypothesis testing was performed in two stages. First, a one-way ANOVA with Brown-Forsythe and Welch's F tests was performed to check if there are any significant differences between generations regarding EI and II. The -Forsythe and Welch's F tests were selected because of unequal sample sizes. Table 2 presents the results.

Table 2: Descriptive statistics and one-way ANOVA with Brown-Forsyth and Welch's F tests

Variable	Generation	N	M	SD	SE	Test	Sig.
EI	Gen Z	453	5.345	1.493	0.070	Welch	20.234
	Gen Y	603	4.983	1.587	0.065		(0.000)
	Gen X	182	4.681	1.739	0.129	Brown-Forsythe	20.652
	Baby Boomers	54	3.620	1.799	0.245		(0.000)
	Total	1292	5.010	1.627	0.045		
II	Gen Z	453	5.269	1.618	0.076	Welch	13.311
	Gen Y	603	4.925	1.849	0.075		(0.000)
	Gen X	182	4.577	1.875	0.139	Brown-Forsythe	13.195
	Baby Boomers	54	3.815	2.088	0.284		(0.000)
	Total	1292	4.950	1.815	0.050		

Note(s). M – Mean; SD – Standard deviation; SE – Standard error. Degrees of freedom = 3; Significance values of the statistic are presented in parentheses.

Source: Authors

Table 2 provides two major findings. First, younger generations tend to exhibit higher EI and II. Second, there is at least one significant difference among generations regarding EI and II. Therefore, the least significant difference post hoc test was performed to reveal exact differences. Table 3 presents the results.

Table 3: Least significant difference post-hoc test

DV	Gen. 1	Gen. 2	MD (Gen. 1-2)	SE	Sig.	Lower Bound	Upper Bound
EI	Gen Z	Gen Y	0.363	0.099	0.000	0.169	0.556
	Gen Z	Gen X	0.664	0.139	0.000	0.391	0.937
	Gen Z	Baby Boomers	1.725	0.228	0.000	1.277	2.173
	Gen Y	Gen X	0.301	0.134	0.025	0.038	0.565
	Gen Y	Baby Boomers	1.362	0.225	0.000	0.920	1.804
	Gen X	Baby Boomers	1.061	0.246	0.000	0.579	1.543
II	Gen Z	Gen Y	0.345	0.111	0.002	0.127	0.563
	Gen Z	Gen X	0.692	0.157	0.000	0.385	1.000
	Gen Z	Baby Boomers	1.455	0.257	0.000	0.950	1.959
	Gen Y	Gen X	0.348	0.151	0.022	0.051	0.644
	Gen Y	Baby Boomers	1.110	0.254	0.000	0.612	1.607
	Gen X	Baby Boomers	0.762	0.277	0.006	0.219	1.305

Note(s). MD – Mean difference; SE – Standard error; 95% confidence interval

Source: Authors

From Table 3, it is evident that there are statistically significant differences between generations regarding EI and II, where Gen Z has higher EI and II than the rest three generations, Gen Y higher than Gen X and Baby Boomers, and Gen X higher than Baby Boomers. In particular, it can be concluded that younger generations exhibit significantly higher EI and II in a sample of the working-age population in B&H. Therefore, there is sufficient evidence to support H1 and H2.

5. Discussion and conclusions

With each passing generation, EI and II are on the rise, with Gen Z and Gen Y leading the charge, as the present study confirms. According to the results, there are significant differences in EI and II among different generations. Specifically, the findings suggest an increasing trend in EI and II, as we move from older to younger generations. This indicates that older generations tend to have lower levels of EI and II than their younger counterparts. These findings confirm generational differences, which have previously only been assumed and hinted at by the researchers (Twenge & Campbell, 2008; Setiobudi & Herdinata, 2018). Even though these generational differences move in the same direction for both EI and II, and the difference between them appears to be negligible, it is important to keep in mind that the results also confirm that these are two distinct constructs. In addition, lower levels of EI and II among older generations align with the noted decline in intentions that occurs with age (Hatak et al., 2015). That can be explained by the previously mentioned opportunity cost of time (Nguyen, 2018), lower risk tolerance among older generations (Baluku et al., 2020), and other generation-specific characteristics discussed below.

The highest level of EI and II is recorded among Gen Z, which aligns with the view that EI peaks between 20 and 25 (Pauceanu et al., 2019). Namely, at the time of data collection for the present study, individuals belonging to Gen Z were 25 years old or younger. This generation grew up with the technology (Rauch, 2018), and that exposure has made them more comfortable and proficient in using technology and facilitated the identification of new entrepreneurial opportunities. In addition, many members of Gen Z value independence, flexibility, and autonomy in their work (Frunzaru & Cismaru, 2021), which can drive them to entrepreneurship and intrapreneurship as they provide more control over the work and decision-making. Besides, high youth unemployment in B&H may promote EI and II among Gen Z, as it may be perceived as means of creating their employment opportunities.

While it is true that Gen Y has been stereotyped as being less entrepreneurial than previous generations (Rauch, 2018) due to their universalistic values (Sagiv, 2002), this study found that Gen Y has higher EI and II than generations preceding it. In particular, placing a high value on purpose-driven work (Yang & Guy, 2006; Lancaster & Stillman, 2002) and social impact (Ng et al., 2010) can, in fact, be more easily achieved through entrepreneurship and intrapreneurship, especially in the developing economy. As B&H is a post-socialist economy, attitudes towards entrepreneurship and intrapreneurship may have shifted with Gen Y as they had minimal exposure to the centrally planned regime, which ended in the early 1990s. In addition, many individuals belonging to Gen Y are highly educated, which may have exposed them to entrepreneurship and intrapreneurship as viable options. The findings of the present study are also somewhat in line with Frunzaru and Cismaru (2021) and Guerrero et al. (2019), who found similar levels of EI and II, respectively, among Gen Z and Gen Y. Namely, while the differences between their EI, as well as II levels, is statistically significant in the present study, it does remain relatively low. Like Gen Z, Gen Y grew up with technology as a

ubiquitous part of life, enabling leveraging technology for business purposes and identifying entrepreneurial opportunities.

Compared to its predecessors, Gen X and Baby Boomers are more likely to accept organizational hierarchy (O'Connor & Raile, 2015), which may be why their EI and II levels are lower in comparison. They are more comfortable working for someone else and less likely to act entrepreneurially at their place of work. Interestingly, Baby Boomers is the only generation that exhibits higher II than EI. While this may be attributed to their age and late career stage, it may also be due to their loyalty to the workplace (Wasilczuk & Richert-Kazmierska, 2020).

5.1. Implications

The findings of this study have significant implications for several different stakeholders. In particular, the results suggest several practical applications for practice and policy, including government, educators, and businesses. First, in designing policies, the government should consider that the nature of EI and II may differ among generations. Their efforts in providing resources and support for start-ups and encouraging innovation among existing businesses should be focused on the youngest generations, as they exhibit the highest levels of EI and II. However, the policies should be tailored to their needs. In particular, as this generation is inexperienced, they may benefit from more guidance. That brings us to our second point; educators can ensure young generations be better informed about future entrepreneurial and intrapreneurial opportunities. That can be achieved by offering elective courses on entrepreneurship and innovation to high-school and university-level students, regardless of their major. Additionally, as they seem to be complementary rather than mutually exclusive career paths, entrepreneurship and intrapreneurship can be promoted and encouraged through same policies and programs. Finally, businesses can help bridge generational gaps by promoting collaboration and knowledge sharing among different generations.

5.2. Limitations and future research

While this study produces valuable insights into generational differences between EI and II levels, it is essential to acknowledge its limitations to understand its scope and findings clearly. First, this study employs a cross-sectional survey design. As a result, no causal relationships may be established, and potential changes in the EI and II that may occur over time have yet to be captured. As a result, future studies should consider implementing a longitudinal study design, which would allow for studying causal relationships and isolate the age effect from the generational effect. The study observes the differences in EI and II without considering the beliefs that shape them. A more informative examination of generational differences in intentions could be obtained if they were observed through a prism of behavioral theories, such as the Theory of Planned Behavior, which would allow for identifying potential generational differences in beliefs that shape the intentions. Finally, this study is based only on the sample derived from one developing county. As the nature of intentions differs in economies at different stages of development, future studies may compare the generational differences in developing and developed countries.

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Appendix

Entrepreneurial intentions

How likely is it that you would want to be self-employed within 2 years (if you are a student then 2 years after graduation), assuming you had a good new business opportunity and you could raise the funding necessary to start your own business?

How likely is it that you would want to be self-employed at some later point in the future, assuming you had a good opportunity and could raise the funding necessary?

How likely is it that you would want to start your own business to exploit a radical innovation?

How likely is it that you would want to start your own business to introduce a new variant of an existing product or service?

Intrapreneurial intentions

How likely is it that you would want to manage (within your employer's business) a new division (or branch) that is set up to exploit a radical innovation?

How likely is it that you would want to manage (within your employer's business) a new division set up to introduce a new variant of an existing product or service?

How likely is it that you would want to manage (within your employer's business) a new division (or branch) set up to introduce an existing product into a new market?

A scientific paper

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ENTREPRENEURIAL EDUCATION, MARKETING SELF-EFFICACY AND ENTREPRENEURIAL INTENTION OF BUSINESS ECONOMICS STUDENTS

ABSTRACT

Recently, entrepreneurship education has been in the focus of scholars as well as policy makers. The modern approach to entrepreneurial education pays special attention to the concept of self-efficacy. The concept of self-efficacy is based on self-evaluation of one's abilities in achieving desired goals. Entrepreneurial self-efficacy is considered as the result of, among others, entrepreneurial education, and it is directly related to the probability of choosing an entrepreneurial career. The aim of this paper is to explore potential influence of different dimensions of entrepreneurial education and dimensions of self-efficacy on entrepreneurial intention of business economic students. The focus of this paper is a specific form of marketing self-efficacy as a result of the process of formal education and its role in entrepreneurial intention. The online survey has been conducted among students of business economics in Bosnia and Herzegovina. Respondents assessed their general entrepreneurial as well as specific marketing self-efficacy and expressed their entrepreneurial intention. In addition, students evaluated the acquired knowledge and competences in the process of formal education about entrepreneurship and marketing. The results of regression analysis confirm that the general level of entrepreneurial self-efficacy as well as the specific level related to marketing self-efficacy have a positive influence on entrepreneurial intention. The results also confirm that both dimensions of education, entrepreneurial and marketing, have a positive effect on entrepreneurial intention. Likewise, the results indicate a positive relation between general and specific entrepreneurial education and general entrepreneurial and specific marketing self-efficacy of students.

Key words: *entrepreneurial education, marketing education, entrepreneurial self-efficacy, marketing self-efficacy, entrepreneurial intention.*

1. Introduction

Bosnia and Herzegovina (B&H) is facing a growing phenomenon of social capital outflow, especially young and educated people. This capital outflow trend significantly reduces the quality of human resources in the country (Čutura and Čolak, 2018). More than a half of young people aged 15-30 intend to leave the country. The reasons for emigrating are most often related to a poor socio-economic status that they plan to improve abroad. One of the most important reasons for the outflow of social capital is the problem of structural youth unemployment which is one of the biggest challenges for society and the creators of socio-economic policies. Although education increases chances on the labor market, the number of young people continuing tertiary education is below the European average.

The problem of high unemployment and the overall bad position of young people on the labor market is certainly linked with a lack of skills, but also with weak support for young people in processes of self-employment. There are several forms of measures implemented in B&H with purpose to initiate youth self-employment. On the other hand, there are significantly smaller number of comprehensive programmes that improve entrepreneurial thinking and skills. The lack of knowledge and skills related to entrepreneurship among young unemployed people is one of the serious barriers that significantly reduce the possibilities of self-employment through entrepreneurship. Young people consider the lack of information and practical knowledge in planning, starting, and running business as the main obstacle in starting their own business. Also, the half of young people have never thought about starting their own business, while more than a third of them believe that the business they eventually would start in the future would surely fail (Socio-Economic Perception of Young People in Bosnia and Herzegovina, 2017). Students of business economics and related fields are a special group of interest from the point of entrepreneurial abilities and interest in running their own business in the future. Business economics studies integrate entrepreneurship education into their curriculum in different ways. Most business economics curricula contain different courses related to entrepreneurship or comprehensive entrepreneurship study programmes. The modern approach to entrepreneurial education pays special attention to the concept of self-efficacy. The concept of self-efficacy is based on self-evaluation of one's abilities in achieving desired goals. Entrepreneurial self-efficacy is considered as the result of, among other things, entrepreneurial education, and is directly related to an entrepreneurial intention. Entrepreneurial education is categorized in different ways in the literature and observed as entrepreneurial knowledge acquired through formal and informal education. Entrepreneurial knowledge and skills are also acquired through different stages of the entrepreneurial process.

The aim of this paper is to explore potential influence of different dimensions of entrepreneurial education and dimensions of self-efficacy on entrepreneurial intention of business students. Marketing self-efficacy, linked to the skills and competencies of marketing field has not received enough attention on the prediction of a new firm formation in past research (Kim, 2019). Therefore, in the main focus of this paper is specific form of marketing self-efficacy as a result of the process of formal education and its role in entrepreneurial intention. In order to achieve the goals of the paper, primary research was conducted. The online survey method is applied among business economics students who assessed their entrepreneurial and marketing self-efficacy as well as entrepreneurial intention. In addition, students evaluated the acquired knowledge and competences in the process of formal education about entrepreneurship and marketing. The paper has been structured as follows: introduction, analysis of youth socioeconomic status and entrepreneurship in B&H, review of empirical studies on youth

entrepreneurship, research methodology, data analysis and hypothesis testing, discussion, and conclusion.

2. Youth in Bosnia and Herzegovina

2.1. Unemployment and socioeconomic status

The first part of the analysis from secondary sources indicators refers to the study of Socio-Economic Perception of Young People in B&H (2017), which included 1.200 respondents aged 15-30. According to the study's results, most of the young people rate their current socioeconomic status as average (79.4%). At the same time, they believe that the quality of their life is worse than the quality of life of the rest of the population (42.8%). Also, young people identified several alarming problems which are: youth unemployment (87.3%), increase of poverty among youth (81.9%) and job insecurity (79.6%). The results of the same study indicate that unemployed respondents with completed college education actively look for a job more often (61.4%) compared to respondents with lower educational level. The largest number of young people who are actively looking for a job state that they have applied for a job up to five times (35.8%) or 6-10 times (20.2%).

The desire of young people to emigrate was observed as an indicator of the perceived opportunities or lack thereof in the country in which they live. According to the study *Lost in Democratic Transition* (Hurrelman and Weichert, 2015), a relatively high proportion of young people shows the intention to emigrate in most countries of the Southeast Europe. The highest percentage of young people who expressed their intention to emigrate is in Albania (66.7%), Kosovo (55.1%), Macedonia (52.8%) and B&H (49.2%), and the lowest in Croatia (26.7%). Young people cite economic reasons as the most important reason for leaving their country. A recent Youth study Bosnia and Herzegovina (Turčilo et al., 2019) conducted on a sample of 1.000 young people aged 14-29 indicates an even higher percentage of young people who intent to leave the country (61.8%).

Although students are often considered as the most valuable part of the social capital of young people, there is a lack of analyzes that deal with this specific group in B&H. Study provided by Čutura and Čolak (2018), based on a sample of 200 students, indicate that almost half of them show a tendency to leave the country, either through the intention to get a job abroad (22.5%), or the intention to settle permanently in one of the EU countries (26.5%). Also, the same study shows that a very high proportion of students plan to continue their studies and improve their skills abroad (79.0%), as well as to work temporarily in one of the EU countries (83.0%). From the aforementioned analysis, it is evident that students, as well as young people from B&H in general, show strong tendencies to leave the country.

2.2. Youth entrepreneurship and self-employment

Considering the surveyed indicators from the Socio-Economic Perception of Young People in B&H (2017) it seems that almost half of the respondents (48.9%) state that they have never thought about starting a business. The same study indicates that, regarding the perspective of starting a business in B&H, almost 40% of the young respondents believe that their business venture would most likely fail. According to data analysis of *Global Entrepreneurship Monitor - GEM B&H* (Umihanić et al., 2011) persons with a university degree are less often

involved in entrepreneurial activities in general. On the other hand, in age group 18-24, the level of involvement in early entrepreneurial activity increases along with educational level.

Research on youth in Bosnia and Herzegovina, labor market, entrepreneurship and leadership (Paočić et al., 2020) examined issues of entrepreneurial intentions including young people aged 15-30. Specific study's focus was on young people's awareness of grants (subsidies) for starting their own business. It seems that 41.72% of respondents are not familiar with this method of financing. A very small number of young people (6.75%) stated that they were familiar with grants, and that they used them. In the surveyed sample, 42.40% of respondents declared that self-employment is their primary form of employment. In second place is the public sector with 22.70% of preferences, while other sectors have less than 20% of preferences.

The same study shows that although young people have largely declared that they would like to develop and run their own business, they see certain obstacles that prevent them from doing so. When it comes to the basic disadvantages of running own business, respondents most often believe that these are: the risk of losing invested funds and too much responsibility. In the context of the basic advantages of running own business, young people emphasize the following advantages: to use their own potential, to be their own boss, entrepreneurs are valued in society, to achieve financial independence, etc. At the end of this part of the research, the respondents had the opportunity to express their opinion about the necessary competencies of entrepreneurs, and what needs to be done before starting their own business. In this context, young people point out that it is very important to have knowledge and skills in: market research, finding a business opportunity, securing financial resources, analysing products/services offered by the market, negotiation, entrepreneurship, etc.

3. Review of empirical studies on youth entrepreneurship and hypotheses development

Study provided by Saraih et al. (2018) investigated the entrepreneurial intention and self-efficacy of Malaysian students. The results showed that self-efficacy is related to entrepreneurial intention, although students express a significantly higher level of entrepreneurial intention compared to the level of self-efficacy. The study conducted by Lv et al. (2021) analysed the effect of entrepreneurship education on entrepreneurial intention. The results showed that entrepreneurial education equally affects the assessment of current entrepreneurial abilities and future entrepreneurial intention. Entrepreneurial knowledge and skills acquired through the process of formal education have a positive effect on entrepreneurial intention (Lv et al., 2021). Hoang et al. (2020) found that entrepreneurship education has a direct effect on Vietnamese university students' entrepreneurial intentions. Likewise, self-efficacy moderates the impact of entrepreneurial knowledge on entrepreneurial intention.

In a study of Korean students Kim (2019) has established a positive relationship between marketing self-efficacy and new firm formation. New firm formation has been considered as the final manifestation of entrepreneurship intention. The results of this study show that the higher the level of marketing self-efficacy, the higher the probability of new firm formation.

Rajh et al. (2016) have conducted a survey among 1.200 students of economics and business in four Southeast European countries: Bosnia and Herzegovina, Croatia, Macedonia and Serbia. Study examined antecedents of entrepreneurial intention in the post-transition context. The results indicated that personal attitude towards entrepreneurship, perceived behavioural control and subjective norms positively affect entrepreneurial intention. Also, the same study found that respondents from B&H have the highest level of entrepreneurial intention compared to respondents from other observed countries.

Study done by Turulja et al. (2020) focused on predictors of entrepreneurial intentions among youth in the context of B&H. Their research observed entrepreneurial intention as the dependent variable while demographics and socio-economic characteristics, perception of education, social and political engagement, as well as media impact, were observed as predictors. The empirical analysis was based on the secondary data provided by The United States Agency for International Development - USAID. The results suggest that certain demographic and socio-economic variables have an impact on entrepreneurial intention. Specifically, higher levels of education and higher perceived standard of living positively influence entrepreneurial intentions. The results also show that respondents with secondary and tertiary education show stronger entrepreneurial intentions than respondents with lower level of education. When it comes to attitudes about education, same study indicates the more positive the respondents' attitudes towards the teaching curricula, the greater the entrepreneurial intention. Šestić et al. (2017) conducted a survey on a sample of 190 young people from B&H. The results indicate that students who have a more positive attitude towards entrepreneurial behaviour and the perception of greater self-efficacy have stronger entrepreneurial intentions. Study provided by Ćosić (2014) found that young people in B&H show a low commitment to entrepreneurship. Results of the same study, also, indicate that young people are not satisfied with the level of acquired entrepreneurship knowledge during the process of formal education. In accordance with the previous section, the following hypotheses have been proposed:

H1. Entrepreneurial self-efficacy and Marketing self-efficacy will have a positive influence on entrepreneurial intention.

H2. Entrepreneurial knowledge and Marketing knowledge will have a positive influence on entrepreneurial intention.

4. Design of the study

This cross-sectional study was based on primary data collected through an online survey method. Participants were undergraduate and graduate students enrolled in academic programmes at two public higher education institutions in Mostar, Bosnia and Herzegovina.

4.1. Definition of key concepts

Bandura (1977) describes the concept of self-efficacy as an individual's ability to perform a specific task despite barriers and challenges. The concept of self-efficacy can be also domain-specific and refer to certain abilities needed to perform specific tasks (Pajares, 1996). Accordingly, entrepreneurial self-efficacy may refer to specific attitudes and skills that an entrepreneur should have in order to perform entrepreneurial activity and achieve entrepreneurial success. Entrepreneurial self-efficacy also can encompass some sub-dimensions associated with special abilities and skills such as: marketing, innovation, management, risk-taking, financial skills, teamwork, opportunity recognition, product development, etc. (Barbosa et al., 2007; Fis et al., 2019). Marketing self-efficacy as a sub-domain of entrepreneurial self-efficacy refers to the ability to perform tasks related to the marketing activities (Kim, 2019). Marketing self-efficacy is specifically linked to skills and competencies in marketing field such as: segmentation-targeting and positioning (STP), brand naming, sales goal, advertising and promotion strategy (Antončić et al., 2016).

Bandura (1997) considered that the main sources of self-efficacy were mastery experience. Mastery experience can be present in two kinds of situations; the first one is the situation of entrepreneurial action learning and the second one is entrepreneurial education where entrepreneurial self-efficacy is developed (Mc Gee et al., 2009). Walter and Block (2016)

believe that the most important role of formal entrepreneurial education is to motivate entrepreneurial activity. Their view is in line with research results that confirm the connection between entrepreneurial knowledge and the desirability of entrepreneurship as a profession. Hoang et al. (2020) have derived the view of entrepreneurial intention as the inaugural step in the process or a series of actions to start a business.

4.1. Sampling and research procedure

The study was conducted using the convenience sampling technique and includes students whose emails were in the lecture database. The online questionnaire was sent to a total of 246 email addresses with a response rate of 44.17%. Out of a total of 110 returned questionnaires, 105 were filled in correctly. The structured questionnaire consisted of a list of statements derived from the literature and questions about the respondent's gender, age and year of study. Descriptive statistics of sampled respondents is presented in Table 1.

Table 1: Characteristics of the sample

Total		105
Gender	Male	27.6%
	Female	72.4%
Year of study	Third year	29.6%
	Fourth year	35.2%
	Fifth year	35.2%

Source: Authors

As it can be seen from the table above the sample includes students in the final years of vocational university study programmes (third year), undergraduate and graduate university studies (fourth and fifth year). The average age of the respondents was calculated ($M=23.31$; $sd=1.68$). Female respondents were overrepresented in the sample, which to some extent follows the actual ratios at the faculties where the research was conducted, as well as the ratios by gender at the national level of those enrolled in the higher education process, especially in study programmes in the field of social sciences.

4.2. Measuring instruments

For the purpose of this research previously defined concepts were operationalized based on earlier empirical studies. Entrepreneurial and marketing self-efficacy were observed through self-assessment of acquired competencies related to the ability to manage certain aspects of business processes and taking risks and responsibility for business decisions (Fis et al., 2019; Kim, 2019). Entrepreneurial and marketing education were observed as the result of a learning process based on involvement in formal education and were formulated as Entrepreneurial and Marketing knowledge (Antoncic et al., 2016; Walter and Block, 2016). Entrepreneurial intention was observed through behavioral components of attitudes towards choosing an entrepreneurial career in the future (Liñán and Chen, 2009). The items in the questionnaire were measured on a five-point Likert-type scale, anchored at 1 (strongly disagree) and 5 (strongly agree). Summary descriptive statistics and a reliability test of measurement scales (Cronbach's Alpha) are presented in Table 2.

Table 2: Summary descriptive statistics and a reliability test of measurement scales

Construct/Items	Cronbach's Alpha	M	sd
Entrepreneurial self-efficacy	.87		
For risk management		3.30	1.15
For making decisions under uncertainty		3.49	1.00
To take responsibility for ideas and decisions		3.75	1.09
For working under pressure and conflicts		3.75	1.11
Marketing self-efficacy	.87		
To set and achieve market share goals		3.34	0.84
To set and achieve sales goals		3.59	0.84
To set and achieve profit aims		3.50	0.87
To establish the position of the product of the market		3.51	0.90
To conduct market analysis		3.72	0.95
For market growth		3.39	0.84
Entrepreneurial knowledge	.88		
Knowledge of the role of entrepreneurs in society		3.59	1.01
Knowledge how to become entrepreneur		3.31	1.07
Knowledge of running a business in the future		3.46	0.99
The knowledge needed to undertake business initiatives		3.29	0.97
Marketing knowledge	.93		
Knowledge of marketing analysis		3.73	0.97
Knowledge in creating and controlling marketing plans		3.69	1.03
Knowledge of segmentation strategies		3.62	0.66
Knowledge of pricing strategies		3.38	1.02
Knowledge of promotional strategies		3.70	1.01
Knowledge of sales management strategies		3.47	1.02
Knowledge of digital marketing strategies		3.65	1.05
Entrepreneurial intention	.84		
My professional goal is to become entrepreneur		3.61	0.89
I am determined to start my own business in the future		3.51	0.85
I was thinking very seriously about starting my own business		3.60	0.99
I have a firm intention to start my own business		3.72	0.87

Source: Authors

All instruments used in the research showed a satisfactory level of reliability ($\alpha \geq .90$; $\alpha \geq .80$). The scale of Entrepreneurial intention (M=3.61; sd=0.77) and the scale of Marketing knowledge (M=3.60; sd=0.84) have the highest overall value while the scale of Entrepreneurial knowledge has the moderate value (M=3.41; sd= 0.86). Before testing the hypotheses, it was checked whether there are differences in the observed constructs concerning respondents' age, gender, and year of study. Analysis of variance shows that there is no significant difference among respondents of different ages and years of study in relation to the observed constructs. When it comes to gender, there is a statistically significant difference only in the case of the Entrepreneurial intention variable. According to the Independent Sample Test, male (M=3.88) show a significantly higher entrepreneurial intention than female (M=3.51) respondents (t=2.234; p=0.028).

4.3. Hypothesis testing

Data analysis was conducted with software package SPSS v.26. The variance inflation factor was calculated indicating that there are no problems with multicollinearity. Multiple regression analysis was used to test the set hypotheses. Table 3 presents results of Regression model 1

where Entrepreneurial intention was specified as a dependent variable. Entrepreneurial self-efficacy and Marketing self-efficacy were specified as independent variables.

Table 3: Regression model 1

Independent variables	B	Std. Error	Beta	t	Sig.
(Constant)	1.475	.325	-	4.541	.000
Entrepreneurial self-efficacy	.323	.098	.385	3.279	.001
Marketing self-efficacy	.280	.134	.247	2.099	.038
R	.590				
R Square	.348				
Adjusted R Square	.336				
Std. Error of the Estimate	.629				
F ratio	27.625				
Significance	.000				

Source: Authors

Regression model 1 shows that the relationships between independent and dependent variables are positive and statistically significant. The independent variables contribute with an average of 35% to explaining the variance in the observed dependent variable. According to the described results, the first hypothesis (H1) assumed that Entrepreneurial self-efficacy and Marketing self-efficacy will have a positive influence on entrepreneurial intention can be considered confirmed.

Table 4 presents results of Regression model 2 where Entrepreneurial intention was specified as a dependent variable. Entrepreneurial knowledge and Marketing knowledge were specified as independent variables.

Table 4: Regression model 2

Independent variables	B	Std. Error	Beta	t	Sig.
(Constant)	1.851	.298	-	6.215	.000
Entrepreneurial knowledge	.236	.113	.265	2.143	.034
Marketing knowledge	.265	.110	.289	2.339	.021
R	.516				
R Square	.266				
Adjusted R Square	.252				

Independent variables	B	Std. Error	Beta	t	Sig.
Std. Error of the Estimate	.668				
F ratio	18.745				
Significance	.000				

Source: Authors

Regression model 2 shows that the relationships between independent and dependent variables are positive and statistically significant. The independent variables contribute with an average of 26% to explaining the variance in the observed dependent variable. According to the described results, the second hypothesis (H2) assumed that Entrepreneurial knowledge and Marketing knowledge will have a positive influence on entrepreneurial intention can be considered confirmed.

The Pearson's correlation coefficient was used to calculate the direction and strength of the relationship between the previously observed independent variables. The correlation of the observed independent variables was conducted to additionally check the theoretically described relationships between them (Table 5 and Table 6).

Table 5: Correlation matrix 1

		Entrepreneurial self- efficacy	Marketing self- efficacy
Entrepreneurial self- efficacy	Pearson Correlation	1	.733**
	Sig. (2-tailed)		.000
Marketing self- efficacy	Pearson Correlation	.733**	1
	Sig. (2-tailed)	.000	

**Correlation is significant at 0.01 level.

Source: Authors

Table 6: Correlation matrix 2

		Entrepreneurial knowledge	Marketing knowledge
Entrepreneurial knowledge	Pearson Correlation	1	.728**
	Sig. (2-tailed)		.000
Marketing knowledge	Pearson Correlation	.728**	1
	Sig. (2-tailed)	.000	

**Correlation is significant at 0.01 level.

Source: Authors

The results show a statistically significant strong positive relationship ($r \geq 0.71-0.90$) between Entrepreneurial self-efficacy and Marketing self-efficacy as well as between Entrepreneurial knowledge and Marketing knowledge.

5. Discussion and conclusion

Students are the most promising source of entrepreneurship, therefore improving entrepreneurial intention and encouraging students to establish businesses is crucial (Kim, 2019; Lv et al., 2021). Hoang et al. (2020) study emphasized the role of entrepreneurship education on university students' entrepreneurial intentions. Furthermore, their findings confirmed that relation among self-efficacy and entrepreneurship education explain variations in entrepreneurial intentions. Described studies that deal with indicators of entrepreneurship among young people in B&H show very similar results, while academic studies indicate some differences in entrepreneurial intention of youth. Regarding the academic studies on entrepreneurial intention of young people in B&H in general and students in particular, the results are not completely consistent (Ćosić, 2014; Rajh et al., 2016). In the case of this research the scale of entrepreneurial intention has the highest overall value which is in accordance with the results obtained in the study conducted by Rajh et al. (2016).

The previously presented analysis of studies clearly identified self-efficacy as an antecedent of entrepreneurial intentions. Kim (2019) states that many studies confirmed how small and medium-sized businesses fail most often due to a lack of marketing skills and knowledge. Regardless of these findings, marketing skills and competencies have not received enough attention in past researches, especially in prediction of new firm formation. Marketing is a key entrepreneurial competency, particularly when setting up a new firm (Kim, 2019). The purpose of this study was also to examine the relationship between marketing self-efficacy and entrepreneurial intention. The results confirm that a higher level of entrepreneurial self-efficacy proportionally increases entrepreneurial intention. Moreover, a positive influence on entrepreneurial intention was also found in the case of marketing self-efficacy as a specific domain of self-efficacy.

A small number of studies dealt with the impact of specific form of entrepreneurial education, such as marketing education and acquisition of specific competencies on entrepreneurial intentions and choosing an entrepreneurial career. The results of this research show that entrepreneurial and marketing knowledge, that is, the perceived level of knowledge in entrepreneurship in general and specifically in marketing, positively influence entrepreneurial intention. Still, the scale of entrepreneurial knowledge has the lowest overall value in the case of this research. Considering that there are no differences according to years of study, age and gender, it can be concluded that knowledge and skills related specifically to entrepreneurial learning should be improved in the study curricula. Considering the research inconsistencies in explaining youth entrepreneurial intention, special attention should be paid to specificities of young people in terms of level and profile of education, but also to specific barriers to entrepreneurial activity regarding differences among young people.

Walter and Block (2016) study focused on contextual settings of entrepreneurship education arguing that a country's institutional environment affects outcomes of entrepreneurship education. Authors have drawn a conclusion: the better an individual feels equipped with entrepreneurial knowledge, the more likely she/he has the confidence to overcome barriers. Their findings confirmed that better understanding of educational outcomes requires consideration of a country's institutional environment which is equally important for policymakers and educators who recently face increasing pressures to justify education investments (Walter and Block, 2016).

In conditions of high youth unemployment rate and inefficiency of the labor market, encouraging entrepreneurship plays a key role in the development of a sustainable economic system. The challenges of return on investment in youth education on entrepreneurship can be overcome through the identification of key characteristics of youth segments that should be targeted with special programmes fully adapted to their needs. Also, educational programmes

aimed at young entrepreneurs should consider specifics of the institutional framework. The data from the previous analysis related to the entrepreneurship indicators show that although the highly educated people are generally less represented in entrepreneurship they are more represented in entrepreneurial activities related to innovation and effectiveness. Entrepreneurship based on effectiveness and innovation have a greater impact on the total added value in the market and thus on other economic indicators. Therefore, through the process of higher education, better quality programmes are needed that will not only offer knowledge, but also practical skills related to entrepreneurship.

As it was said before, women are more represented than men at faculties of economics where research was conducted, as well as at the national level in the process of higher education and programmes, especially in the field of social sciences. Likewise, national statistics show that women successfully complete their studies in greater numbers, but also get their diplomas faster. Although women's entrepreneurship is not given enough attention in B&H, it is important to take this group of highly educated women into serious consideration in the context of entrepreneurship, bearing in mind the trends of increasing women's work activities and an increasing number of highly educated women on the labor market. However, this research shows that female students indicate a lower degree of entrepreneurial intention compared to male students. In accordance with the previously argued need for a deeper insight into the specific characteristics of different groups of young people, it is also necessary to take into consideration the specific characteristics and needs of female entrepreneurship.

The limitation of his study is in adopting a cross-sectional design, and in the relatively small sample which represents students from two higher education institution in Mostar. Additionally, the study selected only entrepreneurship education and self-efficacy concepts as antecedents of entrepreneurial intention. Future research should expand a sample and observe more antecedent variables to explain entrepreneurial intention. Also, gender differentiation as well as education profiles should be explored in more detail.

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A scientific paper

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SLOW CITIES, A CASE STUDY FROM PORTUGAL

ABSTRACT

Contemporary society is going through a critical phase, where the pressure and massification of everything that surrounds it are extreme. Community life is increasingly individualised, associated with an uncontrolled consumption of resources to the limit of local and regional sustainability, with an impact on the level of identity and cultural plurality. The slow movement emerges as the balancing process for modern societies to regain sustainability values and ideals.

In this context, city policies face new challenges and opportunities, taking into consideration the multiple dimensions, from the government to the environmental, social, economic and cultural, and with the participation of the various local actors. The slow concept is relevant for the tourism valorisation of cities, with an impact on sustainable development in economic, environmental and social equality terms. Sustainable tourism is no longer a niche market and is beginning to expand its scope of action. The slow cities network is a clear example of this process. This concept is, therefore, a clear and intelligent bet for Portuguese Tourism, due to its current growth, high demand and socio-economic, cultural and environmental benefits offered to the regions.

The aim of this article, a case study, is to understand the movement of tourism policies in cities in Portugal which are part of this slow movement, combined with urban sustainability. As a result of this study, it appears that the Slow City movement is considered an efficient strategy for urban enhancement and sustainability while providing attraction to national and international tourists looking for these types of destinations and even, eventually, captivating new residents. Moreover, this study aims to contribute to the development of the literature on the phenomenon under study, contextualizing the Portuguese case.

Key words: *sustainability, development, tourism, public policies, slow cities.*

1. Introduction

Recent years have been described by mass tourism, which reflects the lifestyle of developed Western societies, where speed and quantity are valued over quality, leading to negative environmental and social impacts. In response, the slow movement emerged in 1986 to

promote the socioeconomic sustainability of small localities, cultural identity, and respect for nature.

A "slow concept" typically refers to a complex or abstract idea that requires careful consideration and understanding over a significant period. This concept cannot be easily grasped or fully understood without deliberate effort and reflection. The term "slow concept" was popularized by the slow movement, a cultural and social movement that advocates slowing down the pace of life and taking the time to appreciate the finer things in life. Slow concepts can include ideas related to philosophy, spirituality, ethics, art, and other fields that require deep contemplation and reflection.

Examples of slow concepts might include ideas like love, justice, freedom, consciousness, morality, and identity. These concepts are not easily defined or understood and may require sustained engagement and reflection to fully appreciate and understand their nuances and complexities (Heitmann et al., 2011).

This article aims to analyse the slow movement, specifically the slow cities movement and its manifestation in Portugal, using a methodology based on a literature review and subsequent discussion. The literature concerning Portugal, points to a desire for a large participation of citizens to define joint medium and long-term strategies that ensure compliance with the principles of environmental preservation and sustainability (Perano et al., 2019).

Following the introduction, section 2 examines sustainable development strategies, while section 3 explores the concept of sustainable cities and their challenges in terms of sustainable urban territories. Section 4 aligns sustainable tourism with the previous discussions, highlighting re-education and the development of practices for a circular economy, among other actions. Section 5 focuses on the reflection and discussion of slow cities, slow tourism, and sustainable cities. Section 6 presents the Portuguese slow cities movement. Finally, the article concludes with final considerations, limitations of the study, and suggestions for future work.

2. Background

The aim of this article, a case study, is to understand the movement of tourism policies in cities in Portugal which are part of this slow movement, combined with urban sustainability. Therefore, in this section, we present the state of the art on the phenomenon under study. In this sense, the literature review results from the following strategy: (i) network of concepts: sustainability, city policies, tourism, public policies, public policies, slow cities; (ii) research sources: google academic, ScienceDirect, Web of Science; (iii) period of the bibliographical research: January - April 2023; (iv) selection criteria of the bibliographical resources: title, summary, year of publication (between 2000-2023). So, as result, subsection 2.1 discusses the sustainable development strategies; subsection 2.2 the concept of sustainable cities; sustainable tourism is discussed in subsection 2.3; and finally, subsection 2.4 presents the importance of articulation between slow cities, Slow tourism, and sustainable cities.

2.1. Sustainable Development Strategies

Sustainable Development has become a ubiquitous paradigm for economic growth, social equity, and environmental protection. In recent years, several studies have been conducted on sustainable development. The results of these studies state that sustainable development is not a static or finite development; it is a changing and complex reality, involving various economic, social, environmental, and political transitions, to provide a better life for current formations and future generations (Wątróbski et al., 2022; Nederhand et al., 2023).

The Brundtland Report, produced in 1987 by the World Commission on Environment and Development, created by the United Nations Assembly, defines sustainable development as the "ability to meet current needs without endangering the ability of future generations to meet their own needs" (WTO, 2001, p. 230). The fundamental aspects of this concept relate to the importance of time and long-term perspectives and the recognition of the trade-off between meeting the needs of the present and the availability of resources to meet the needs of the future. According to Croall, quoted by the WTO (2001), the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, held in 1992, highlighted the need to (i) respect and care for the community of life; (ii) improve the quality of human life; (iii) conserve the vitality and diversity of the earth; (iv) minimize the destruction of renewable resources; (v) stay within the carrying capacity of the earth; (vi) change the attitudes and actions of the population to adopt the ethic of sustainable living; (vii) empower communities to care for their regions and (viii) promote a national scheme to integrate development and conservation.

Agenda 21, proposed at UNCED, encouraged States to adopt national sustainable development strategies as a means of implementing and developing the Conference's decisions, embodied in Agenda 21 and the so-called Rio agreements (the international conventions for climate change and biological diversity). The call for the preparation of these strategic documents, which should strengthen and harmonise national policies for the economy, social issues, and the environment, emphasised the primary contribution of national policies and development strategies so that, in this way, the much sought-after sustainable development may be achieved (APA, 2008).

On 1st January 2016, the United Nations (UN) resolution entitled "Transforming our world: 2030 Agenda for Sustainable Development", consisting of 17 goals, broken down into 169 targets, which was approved by world leaders on 25th September 2015, entered into force. The then UN Secretary-General, Ban Ki-moon, stated that "the 17 Sustainable Development Goals (SDGs) are our shared vision for humanity and a social contract between world leaders and people"; "they are a list of things to do on behalf of people and planet, and a blueprint for success".

For the UN, turning this vision into reality is essentially the responsibility of national governments, but it will also require new partnerships and international solidarity, as everyone has a role to play. In this context, municipalities have a crucial role in achieving these SDGs at the local level. In 2012, Ban Ki-moon, stated that the "fight for global sustainability will be won or lost in cities".

2.2. Sustainable Cities

In 2018, Aziza Akhmouch, head of the Cities, Urban Policies and Sustainable Development Division of the Organisation for Economic Cooperation and Development (OECD), reinforced that two-thirds of the SDGs cannot be achieved without local and regional governments, stressing the shared responsibility of all. Local governments are the entities best placed to identify the most urgent challenges and development gaps in their territory (Vasconcelos et al., 2022).

Aware of this role, some local governments saw this platform as a strategic opportunity to highlight their commitment to the 2030 Agenda and share the work resulting from their local policies and actions (Bisogno et al., 2023). Also, in Vercher and collaborator's opinion (2023), there should be a strong cooperation strategy between national development plans and local authorities. This strengthening of synergies between local and national plans will be essential to achieve the SDGs. As Ebolor (2023) refers cities face resilience challenges in terms of environmental, social, economic, and integrated smart infrastructure and governance.

Subsequently, in the framework of the 25th Conference of the Parties (COP25), of the United Nations Climate Change Convention, which took place in 2019, the European Commission presented the European Ecological Pact "The European Green Deal", based on ten pillars: (i) climate ambition; (ii) clean, affordable and secure energy; (iii) industrial strategy for a circular economy; (iv) Zero pollution; (v) prevention and protection of Ecosystems and biodiversity; (vi) Green agriculture - Agricultural policy; (vii) sustainable mobility; (viii) fair transition mechanism (integration of sustainability in all European Union - EU policies); (ix) research and innovation - "Working together" and (x) EU at the global forefront.

According to the Sustainable Development Goals, aligned with the measures proposed by the European Ecological Pact, a new organisation and management of cities are sought, focused on the citizen and on a better quality of life.

Also, according to the OECD, more than half the world's population lives in urban centres, a figure that is expected to reach 60% by 2030 and 70% by 2050. The high concentration of the population in urban areas implies an unsustainable increase in consumption translated into an unprecedented increase of the ecological footprint, causing devastating impacts on the planet. Cities, therefore, face major challenges today: to continue to grow economically while delivering social progress, ensuring at the same time a reduction in pollution and sustainable use of natural resources. The response to these challenges will be decisive on the Sustainable Development agenda and represents an opportunity for innovation focused on economic, environmental, and social progress, and with the intervention of all the agents of the urban ecosystem - citizens, schools, local authorities, companies, and other non-governmental organisations.

Thus, it is the political responsibility, through local public policies, to decide what needs to be done in those same territories, guaranteeing, and promoting urban sustainability. In this context, Fraga and collaborator's (2021), mentions the importance of promoting actions that foster greater citizen involvement, especially regarding the collection of information needed to draw up diagnoses and to propose future actions and commitments to be taken on by the city, such as the issue of sustainability and the resolution of serious environmental problems that haunt the local community's environment.

In this highly complex context, economic issues take on added importance, for all their impact in terms of social sustainability, in its various dimensions. In the tourism industry, cities play an important role worldwide since many of them are already important tourist destinations. The quality of these tourist destinations will generate more value for tourists, who will in turn contribute to the development of these territories while bringing added challenges in terms of environmental sustainability.

2.3. The Sustainable Tourism

According to the WTO, "tourism comprises the activities that people carry out during their trips and stays in places other than their usual environment, for a consecutive period of less than a year, for leisure, business or other purposes" (WTO, 2001: p. 3). Tourism is linked to various segments, among them, consumer tourism, where excursions are organized with the main objective of shopping, religious tourism, held for meetings in regions with a religious tradition, cultural tourism, rural tourism, nature tourism, business tourism, an other.

For Valls (2004), the tourist destination is delimited in a certain geographical space, with endogenous characteristics such as climate, culture, and agriculture, among others. Enhancing endogenous resources can mean attraction in relation to other resources that, being exogenous, influence the process of territorial transformation, increasing the notoriety of the territory. Thus, the importance of tourism is due to its physical, economic, and political areas

of action. According to Cerro (1993), the analyses of tourism impacts are explained by the location, the identification of places or regions and their tourism potentialities.

Thus, tourism has a great repercussion on the economy of countries and regions in which it develops, although with different intensities, according to the dynamism and diversification of the economy, whether local, regional, or national economy. The WTO (2001) highlights some impacts generated by tourism activity at the local level, namely: (i) impacts on the local economy; (ii) increase in business activity; (iii) increase and distribution of income; (iv) socio-cultural impacts and (v) impacts on the environment.

In recent years, the concern with environmental problems has led to the idea of generating sustainable economic activities. Sustainability and competitiveness are fundamental pillars of tourism policy. The balance between economic growth and sustainability is, in this sense, one of the main challenges of city policies and, more specifically, sustainable tourism policies (Schönherr et al., 2023). The concept of Sustainable Tourism is also being introduced in tourism, where the aim is to develop tourism without degrading or depleting the resources used in this sector. According to the World Tourism Organisation (2001), the sustainable tourism development process is a combination of three dynamically interrelated factors aimed at achieving the sustainability of the tourism system: (i) economic sustainability - ensures efficient tourism growth; employment and satisfactory levels of income, always with control over the costs and benefits of resources that ensure continuity for future generations; (ii) ecological sustainability - ensures that tourism development is compatible with the maintenance of biological processes and (iii) socio-cultural sustainability - ensures tourism development compatible with the culture and values of local populations, preserving the identity of the community.

In this context of concerns and strategies with sustainable tourism, seasonality, understood as "(...) the tendency of tourist flows to concentrate in short periods of the year" (Allcock, 1994, p.92), appears as one of the most destabilising factors for economic sustainability. This phenomenon causes a strong concentration of tourist flows in time promoting, on the one hand, activity peaks with negative effects on physical and social resources at the destination, and on the other, demand valleys that generate inefficiency in the tourism industry (Vanhove, 2007).

According to Yan & Wall (2003, cited by de Almeida, 2015), the impacts of seasonality have become more pronounced with the growth of mass tourism. The diversification of supply is pointed out as a determining factor at this level. More specialised destinations tend to be more seasonal, and those that benefit from a greater diversity of products, resources, and tourist attractions, tend to have a more diversified demand and a lower degree of seasonality (Weidenfeld, 2018). According to Butler (1998) the main effects of seasonality can be grouped into three major categories: effects on employment, investment, and the environment. One way to mitigate seasonality is to promote specific activities in the destination, often referred to as SIT - 'Special Interest Tourism', such as golf, bird watching or nightlife. These are activities that are configured as primary tourist motivations, leaving the choice of destination or season of consumption in second place. Therefore, the diversification of products through the development of the SIT is considered a relevant contribution to expanding the high season, as highlighted by Karyopouli & Koutra (2013).

In the Portuguese case, combating seasonality in tourism has been a constant concern. The Tourism Strategy 2027 (ET27) points out seasonality as an "adversary of employability". For Turismo de Portugal, part of the strategy to combat seasonality involves strengthening Portugal's internationalisation as a tourist destination to visit, invest, live, and study. With more overnight stays and more revenue and tourists throughout the year, in more parts of the territory, the intention to increase the qualifications of the population employed in this sector would be facilitated.

Resulting of the recovery plan "Reactivate Tourism, Build the Future" and aligned with the objectives of the Tourism Strategy 2027 (ET27), the "Plano Turismo + Sustentável 20-23" intends to intensify the objective of sustainability in the tourist activity, with actions such as re-education for a circular and sustainable catering, the development of practices for a circular economy, carbon neutrality in tourist resorts, sustainable construction in tourist resorts, among others. Under the motto "More than a challenge, it is the way", this Plan's purpose is to position Portugal as one of the most competitive, safe, and sustainable tourist destinations in the world through economic, social, and environmental development throughout the territory. It is from this perspective of sustainable development, associated with other concepts such as tranquility, enjoying nature and valuing endogenous products, including gastronomy, that slow cities have emerged, as a way of improving the quality of life of city residents as opposed to the frenetic and uncontrolled lifestyle of large urban centres.

2.4. Slow Cities, Slow Tourism and Sustainable Cities

The Slow Cities movement was started in Italy in 1999 by Paolo Saturnini, then mayor of the town of Greve in Chianti, located in Tuscany (Italy), when he decided to adapt Slow Movement principles to urban life.

The Slow Movement is a movement of worldwide proportion, which originated from the Slow Food Movement (born in Italy in 1990), a movement thought as a reaction to the fast-food culture (massified and impersonal), aiming at a greater appreciation of food and the appreciation of food production (de Oliveira, 2021). According to de Carvalho (2015), the basis of Slow Food's philosophy is "slowness". To this end, it invites people to take more interest in the food production cycle and to understand the true socio-environmental impacts of food production, transportation, and consumption in the city, drawing attention to the flavours, aromas, and values of regional cuisine. For Slow Food, choosing 'products of the land' is a way of experiencing the energy of the land, helping to preserve (or recover) traditional knowledge and cultural values.

It was in this context that the concept of Slow Cities was born and so on 15th October 1999, the Cittaslow International Organization was founded in Orvieto, calling itself the "International Network of Cities of Good Living". The purpose of this movement is not to deny the influence of modernity in cities, but to combine the best of both worlds: the modern and the traditional. The aim is to create "cities where men are still curious about the old days, cities rich in theatres, squares, cafés, workshops, restaurants and spiritual places, cities with unspoilt landscapes and charming artisans where people are still able to recognise the slow course of the seasons and their genuine products respecting spontaneous tastes, health and customs" (translated from the Cittaslow Manifesto).

In sum, slow cities can help promote sustainable development by encouraging people to slow down, connect with their communities, and build stronger relationships with others (Evans et al, 2019). From the perspective of Mayer & Knox (2006), the Slow Cities movement is a model of urban economic leadership and a form of sustainable urban development through programmes aimed at environmental protection, economic development, and social equality. In this context, Perano, La Rocca & Casali (2019) point out that the results underline the existence of a positive relationship between territorial certification and value creation of SMEs, measured in terms of annual growth and financial performance. The impact of this positive relationship is both direct and indirect. Value creation (through annual growth) is linked to the direct positive impact of territorial certification on SMEs operating in the accommodation and food and beverage sector located in Cittaslow cities.

This type of city has as its purpose: (i) the use of tools and technologies oriented to preserve and improve the quality of the environment and the urban network; (ii) the stimulation of

sustainable production and consumption at the local level - valuing and giving preference to small regional producers; (iii) sustainable development and conscious consumption; (iv) well the production of natural foods and (v) the valorisation of local culture and traditions (Arins, 2009). Mayer & Knox (2006) also add the fact of creating relationships between local and community trade and other local agents.

The relationship of man with the countryside, with productive activities, has great emphasis in the Cittaslow proposal, as it brings "sustainability" to the economic life of the community. By bringing the countryside and the city closer together and reducing the distances between the place of production and the place of consumption of food, Cittaslow promotes social, economic, and environmental gains. The importance of the countryside and the strengthening of local relations, for example, lead to the valorisation of small industries, cooperatives, and local companies, that is, the so-called "family businesses", which strengthen the community's ties with the territory and feed the production of typical products, since a small scale ends up being of high quality. In this way, a circular economy is created, which helps boost local production and traditional agriculture and makes local markets become the main traders of this production. This also helps preserve cultural identity, reduces the social and environmental costs of production, and awakens the interest of tourists, visitors, and residents in tasting the products in the same environment in which they were produced (Mayer & Knox, 2006).

The Slow Cities movement is an endogenous strand, i.e., focused on local development prioritizing the use of resources available in the region itself, typical of the place or local culture and thus creating sustainable and livable cities (de Carvalho, 2015; Dogrusoy & Dalgakiran, 2006). This movement tries to transform the cities inserted in its network so that they become tourist-friendly destinations, where the relationship with the Slow Food movement is very close, thus developing gastronomic tourism and eco gastronomy and, in this way, making local economies more sustainable (Nilsson et al., 2011). This view is shared by Emmendoerfer et al. (2020), who mentions that Slow Cities can be a trend towards tourism based on local identity, and made possible through "slow" activities, occasioning the so-called Slow Tourism. Slow tourism is one of the fastest-growing niche markets and is seen as a form of sustainable tourism, becoming a phenomenon of study of extreme relevance, both for academics and professionals (Manthiou et al., 2022).

Slow tourism can be an attribute for the development of slow cities through tourist attractions that are ecological, sustainable, and oriented to the respect for the culture of the city and its traditions, which value the local cuisine and the activity of small producers. Thus, the movement is concerned with promoting a different way of developing cities by improving the quality of life of the community, taking cultural traditions, ecology, and sustainability as basic elements.

In this sense, the success of this movement may be associated with the fact that slow cities are more directed to small cities, where the sense of place and the sense of community can be more easily preserved (de Carvalho, 2015). Slow cities include in their proposals aspects that are found in any sustainable city project. The big difference lies in the fact that slow cities seek to reconcile the introduction of eco-efficient practices and technologies with the protection of the cultural and environmental diversity of each place. Eco-efficient houses and buildings, the reduction of impermeable areas within the urban network, the encouragement of bicycle use, the prioritization of the pedestrian mode favouring the act of walking (walkability), and organic farming, among others, are aspects of a sustainable city that are also found in the principles of slow cities (de Carvalho, 2015).

From the perspective of Portney (2013), the conceptual basis of a sustainable city necessarily involves urban sustainability, sustainable economic development, and community (social) sustainability. Thus, slow cities present contributions to three areas: promoting eco-efficient

actions to achieve urban sustainability; encouraging local development to ensure the economic sustainability of the community; and valuing the strengthening of local ties, from the slow way of life and community protagonist, to protect social unity. It also stresses that sustainability can only be effectively achieved when public policies take its necessity seriously.

The Slow City movement, as a territorial qualification guideline, presents itself as a territorial innovation alternative, less focused on the fast-marketing policy of cities, but on the contrary, more endogenous and collaborative, involving different public and private agents, prioritizing autochthonous resources of the locality involved (Emmendoerfer et al., 2020). These authors also add that the advertising and even playful aspect of the Slow City movement discourse can be used as a vector for tourism development and for the projection of a city's name, through the development of thematic gastronomic and tourism offers, the construction of ecological and cultural recreational spaces within the movement's definitions and through the offer of festivals and events.

In the study by Dogrusoy & Dalgakiran (2011), three slow cities were analysed which had as a common point the pioneering of the movement in their respective countries. They concluded that there were three distinct goals guiding the intention of each of these cities to join the slow cities movement. Although guided by the spirit of the slow movement and with a strong focus on the preservation of local specificities, three different purposes weighed in the decision of these cities to become slow: (i) in one city it was the adoption of the slow urbanisation model as a way to resist urbanisation pressure; (ii) in another city it was the concern with ecological and environmental issues; (iii) in the last city it was the intention to explore the tourism potential of the place. As a common point, in all the cities studied, there were visible improvements in the quality of life of their inhabitants, through investment in better infrastructure, promotion of healthier lifestyles and investment in more ecological and sustainable modes of agricultural production. This shows that the model can be adapted differently to each context, depending on its objective (Dogrusoy & Dalgakiran, 2011). Also of note is the importance of practicing actions under the guideline of the Slow City Movement and how these same local development actions can contribute to the achievement of the Sustainable Development Goals of the UN Agenda 2030 (Emmendoerfer et al., 2020).

To be Slow City a city must meet at least 50% of the criteria of a list with 60 items and the fundamental principles are based on 5 macro-categories: (i) Environmental Policy; (ii) Infrastructure Policy; (iii) Technology for Urban Quality; (iv) Valuing local products; Hospitality and (v) Conviviality.

Cities with more than 50,000 inhabitants cannot apply but should not shy away from trying to live more in line with the principles and objectives of Slow Cities and the Slow Movement, enhancing their slow niches such as parks, lakes, and historic areas, or simply cultivating and promoting an attitude of life in line with these values and thus gaining recognition and, more importantly, quality of life for their citizens. Several large capitals and cities such as London, Madrid, Sydney, and Tokyo are already cultivating and trying to get closer to living according to the principles of the slow attitude.

3. Slow cities, a case study from Portugal

According to the International Movement of Cittaslow Association (<https://www.cittaslow.org/content/association>), with data referring to November 2022, there are 287 cities in the world which are members of the International Slow Cities Network, spread across 32 countries. In Portugal, based on the same data, there are only four cities

which are members of this movement: S. Brás de Alportel, Silves, Tavira and Viana do Castelo.

In Portugal, the slow movement is relatively recent. In 2009 a group of people with experience in associations, management and evaluation of community intervention and education projects created the Slow Movement Portugal Association (<https://www.slowmovementportugal.com/quem-somos>), a non-profit Non-Governmental Organization (NGO).

Slow Movement Portugal is strongly committed to the dissemination of the slow movement in Portugal, as well as to the practical application of its principles and philosophy in favor of quality of life and sustainable, solidary, and integrated development for communities, environment, and individuals. According to Slow Movement Portugal, the Slow Movement culture is "(...) a culture of leisure. It is a movement of balance. With ourselves, with others and with the world. Being slow is not being too slow, lazy, or out of touch with the world. It's about trying to enjoy what the modern world gives us, however, striving to have the opportunity to stop as a way of experiencing pleasure in simple things. It's about enjoying good moments, feeling, and living each phase, allowing oneself to do that which fulfils each one the most and giving each thing its due time". To achieve this, this Movement is developed in three areas: (i) information, divulgation, creation, and theoretical development of the movement; (ii) networking, sharing, meeting, and connecting people, groups or entities interested in the 'Slow Movement' and its values; (iii) implementation and promotion of projects and activities towards a balanced, sustainable, and solidary society which strengthens the values and ways of being associated to the slow movement.

To achieve its goals, Slow Movement Portugal has developed a set of activities, namely: (i) Slow Conversations; (ii) SlowSchool Seal and (iii) Slow Travel - Tourist Roadmap in Portugal.

Slow Conversations are conversations that aim to foster deep connections between people and encourage them to slow down and listen to each other. Slow Conversations may take place in various settings, such as cafes, public spaces, or even online. The goal is to create a space for meaningful conversation, reflection, and connection.

SlowSchool Seal is a certification program for schools that promote the values of the Slow Movement, such as mindfulness, sustainability, and community. The SlowSchool Seal program aims to create a network of schools that prioritize these values and promote a slower, more intentional way of learning.

Slow Travel - Tourist Roadmap in Portugal is a guidebook for travellers who want to explore Portugal at a slower pace and in a more sustainable way. The guidebook provides knowledge about the territory through organized initiatives in such important areas as Sustainability and Environment, Natural Heritage, Local Products and Handicraft, Health, and Wellness, among others. This initiative is promoted and managed in partnership with ANIMAR - Portuguese Association for Local Development (<https://www.animar-dl.pt/quem-somos/apresentacao/>). This itinerary seeks to offer tourists the discovery of Portugal through the movement for the promotion of local development as a structuring model for valuing territories, people, and all living beings.

Overall, these activities demonstrate the commitment of Slow Movement Portugal to promoting a slower, more mindful way of living and engaging with the world.

Regarding the policies and strategies developed by each of the four cities in Portugal which have joined the slow movement, there are several references to this adherence, but there is a lack of access to information describing in detail the implementation of such measures, as well as evaluating their impacts.

In this context, and despite the limitations found, it should be noted that the municipality of São Brás de Alportel is a member of the Association of Municipalities of the National Road

Route 2 (N2), which has as its main objectives the creation of wealth and enhancement of people within the territories crossed by the N2, tourism development, and economic and cultural promotion in a sustainable way. In São Brás de Alportel, Portugal, the Slow Movement is present in various aspects of daily life. For example, the Slow Food movement promotes local, seasonal, and sustainable food practices through farmers' markets and restaurants offering fresh, organic produce. The town also embraces Slow Tourism by offering unique and authentic travel experiences that encourage visitors to connect with nature and local communities in a responsible and sustainable way. Slow Living is a way of life in São Brás de Alportel, with initiatives that promote mindfulness and intentional living through meditation, yoga, and other practices. Slow Education values such as sustainability, community, and creativity are promoted in local schools and educational initiatives. Finally, the Slow Fashion movement is present in São Brás de Alportel through the creation of unique, high-quality fashion items using traditional techniques and natural materials by local designers and artisans.

The municipality of Tavira, on its website, discloses that it is part of the slow movement, highlighting the objectives of such membership in terms of local development. It also assumes, in an objective way, the alignment of the slow movement objectives with the climate change adaptation strategies. Examples can be found in slow food, slow tourism, slow living, slow fashion, and slow education. Slow Food: Tavira is a city in the Algarve region of Portugal that is known for its traditional cuisine and local food products. The Slow Food movement is present in Tavira, with a focus on promoting local, seasonal, and sustainable food practices. The Slow Food Tavira convivium organizes events and initiatives that celebrate local food culture and promote sustainable food practices. Slow Tourism: Tavira is a popular tourist destination, but it also has a growing Slow Tourism movement. Slow Tourism promotes a more sustainable and responsible approach to tourism, with a focus on promoting local culture and natural resources. Local tourism initiatives offer experiences that encourage visitors to slow down, connect with nature, and engage with local communities. Slow Living: Tavira is a great place to experience a slower way of life. The city has a relaxed and laid-back atmosphere, with a strong sense of community and connection to nature. The Slow Living movement is present in Tavira, with a focus on promoting a more mindful and intentional way of living. Local initiatives offer opportunities for meditation, yoga, and other practices that encourage people to slow down and connect with themselves and their surroundings. Slow Fashion: Tavira has a rich history of traditional handicrafts, including pottery and embroidery. The Slow Fashion movement is present in Tavira, with a focus on promoting sustainable and ethical fashion practices. Local designers and artisans create unique and high-quality fashion items, using traditional techniques and natural materials. Slow Education: Tavira has several schools and educational initiatives that promote the values of the Slow Movement, such as mindfulness, sustainability, and community. The Slow Education movement is present in Tavira, with a focus on creating a more holistic and meaningful approach to learning. Local schools and initiatives offer programs that encourage creativity, critical thinking, and personal development.

Regarding the municipality of Viana do Castelo, there are several policies and projects oriented to the sustainability of the territory, namely at the level of tourism, education, and economic development policies. In Viana do Castelo, there is a strong tradition of local cuisine and food products, which is also supported by the Slow Food movement. This movement emphasizes promoting sustainable and seasonal food practices, and the Slow Food Viana do Castelo convivium organizes events and initiatives that celebrate local food culture. The city is also known for its vibrant textile industry, which includes traditional handcrafted textiles like embroidery and lace. The Slow Fashion movement is present in Viana do Castelo as well, promoting sustainable and ethical fashion practices, and local designers and artisans

create unique and high-quality fashion items using natural materials and traditional techniques. In addition, Viana do Castelo is a popular tourist destination with a growing Slow Tourism movement. This movement aims to promote a more sustainable and responsible approach to tourism, emphasizing local culture and natural resources. Local tourism initiatives provide experiences that encourage visitors to slow down, connect with nature, and engage with local communities. The city also offers a relaxed and laid-back atmosphere with a strong sense of community and connection to nature, making it a great place to experience Slow Living. The Slow Living movement is present in Viana do Castelo, promoting a more mindful and intentional way of living. Local initiatives provide opportunities for meditation, yoga, and other practices that encourage people to slow down and connect with themselves and their surroundings.

Finally, the Municipality of Lagos clearly assumes the definition of its policies in line with the objectives of the slow cities movement; it has incorporated in the municipality's image the logo of the slow cities movement as well, as a facilitator of this recognition. The principles of the Slow Movement are embraced by the Municipality of Lagos in various domains. The city is known for its rich culinary heritage and has a thriving Slow Food movement that prioritizes local, seasonal, and sustainable food practices. To promote responsible consumption, the Slow Food Lagos convivium organizes events and initiatives that celebrate the local food culture. In addition to Slow Food, Lagos also places a strong emphasis on Slow Fashion, highlighting traditional handicrafts such as pottery, ceramics, and weaving. The Slow Fashion movement in Lagos focuses on ethical and sustainable production methods that use natural materials and traditional techniques to create one-of-a-kind fashion items. Lagos is equally dedicated to Slow Tourism, which encourages a more sustainable and responsible approach to tourism. The city offers a range of cultural and natural attractions, and local tourism initiatives emphasize connecting with nature and engaging with local communities. Lastly, Lagos is actively involved in the Slow Living movement, which promotes a more mindful and intentional way of living. The city encourages a slower pace of life and provides opportunities for meditation, yoga, and other practices that encourage people to connect with themselves and their surroundings.

Correia et al (2021) consider that in Portugal, the results suggest that the three phases of smart cities are perceived in slightly different ways and the heterogeneity within the country can be noted by the lack of strategies and a standard framework.

4. Final reflections

The slow movement, namely slow tourism, has been growing strongly.

The philosophy of slowing down offers another way to provide tourism with specific guidelines, such as tourists moving around, reducing their carbon footprint, taking an ecological and ethical view, focusing on local contacts and nearby tourist spots, consuming local products and discovering heritage, conserving the quality of life of locals, and ensuring a high-quality tourism experience. The slow tourism movement is also a significant reaction to mass tourism, offering more authentic experiences that take particular care of the environment (Manthiou et al, 2022).

Although in Portugal this movement is residual, the strategy defined for tourism by the Portuguese government points to this movement as one of the potential paths, as a means of suppressing a type of mass and uncontrolled tourism.

Portugal is a country that has enormous potential in terms of slow cities; it is essentially made up of small towns, there are very marked local specificities, it has a vast diversity of high-quality regional products, and natural landscapes not yet affected by visual and atmospheric

pollution resulting from human intervention. There are small Portuguese cities and towns where, in a way, the philosophy of slow towns already rules, as we still see conviviality, hospitality and a calmer pace of life, quite different from the large urban centres (Soares, 2018). The literature concerning Portugal points to a desire for a large participation of citizens to define joint medium and long-term strategies that ensure compliance with the principles of environmental preservation and sustainability (Perano et al., 2019). Value creation has a direct relationship with the certification of territories and SMEs operating in regions characterised by slow cities (Correia et al., 2021). Recent literature review literature highlights the different speeds at which regions in Portugal are in relation to this topic, due to the lack of definition of strategies and standardised criteria (frameworks) (Correia et al., 2021).

Based on the research carried out, it is considered important to develop interpretative studies, of qualitative scope, to better know and understand each of the case studies pointed out. There are several references to the adherence to the slow movement by Portuguese cities, however, it is very difficult to access information on the evaluation of the impacts of policies and strategies adopted at the level of the respective territories and their effects on sustainability gains. The information available on the websites of each of the four municipalities is very residual. There are references to the adhesion to the slow movement, and development of policies, projects, and initiatives, lacking, however, detailed and descriptive information of such measures implemented with their respective impacts.

In this study, the limitations found are, therefore, essentially at the level of resources for a more complete analysis of the literature review, and thus enrich the study about the slow cities' movement in Portugal.

Despite the limitations encountered, this study contributed to consolidating the knowledge about slow movements in cities, particularly in terms of tourism, as well as the impact that such strategies may have in terms of sustainability gains, preservation and strengthening of territorial identities.

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A scientific paper

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IMPLEMENTATION OF SUSTAINABILITY ISSUES AT HUNGARIAN SMEs

ABSTRACT

This study aims to observe the interpretation of corporate social responsibility (CSR) and sustainability, the related activities and main stakeholders in the Hungarian SME sector.

Methodology: In our exploratory qualitative study in May and June of 2022, three focus group discussions were carried out with prominent professionals who represented Hungarian SMEs. Transcriptions were studied through broader content analysis using NVivo software. We have found answers for our three research questions with the combination of different analysing tools. Based on the qualitative results, for the next phase of the research we formalized a questionnaire which will be surveyed on a representative sample.

Results: According to the results of our interviews, prominent SME leaders have a sense of responsibility and are concerned about sustainability issues both in their private and entrepreneurial life. They think that modifying their activities to be more sustainable and responsible is a moral obligation. Most of the interpretations that appeared for the notions “sustainability” and “responsibility” were related to the future generation and the impact on the future. Employees, the natural environment and future generations – represented by the family of the SME leaders and the employees – are the most important stakeholders. That is why activities related to them (eg. voluntary programmes, providing decent working conditions, eco-efficient process developments) are the most featured activities targeting a sustainable future.

Key words: *entrepreneurship, sustainability, Corporate Social Responsibility (CSR), SME.*

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1. Introduction

According to the literature of Corporate Social Responsibility (CSR) and corporate sustainability, SMEs should be distinguished from large companies. They have special intentions for taking responsibility towards the environment and society, e.g. because they are closer to the stakeholders. At the same time, they have different possibilities, because they have fewer organizational, human and financial resources. These features result in a special mindset, vocabulary and activities within the scope of CSR.

The emergence of CSR has traditionally been associated with larger companies (Jansson et al, 2017) and these large companies have long been the focus of major international guidelines (ISO, 2010, ILO, 1998, OECD, 2000, UN, 2000, 2011, IIRC, 2021, GRI, 2022) as well, including the social responsibility definition of ISO (2010): “responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that contributes to sustainable development, including health and the welfare of society, takes into account the expectations of stakeholders, is in compliance with applicable law and consistent with international norms of behaviour, is integrated throughout the organization, and practised in its relationships.” However, the current social and ecological situation justifies the need for all social and economic actors, including SMEs, to act as a promoter of sustainability, as declared in the UN Sustainable Development Goals (UN, 2015).

As SMEs have unique characteristics and capabilities that require special attention, examining the interconnected nature of small business practices has led to a new area of research in CSR (Magrizos et al., 2021). The characteristics of CSR activities of SMEs and large companies may differ in a number of aspects, as there are significant differences between large companies and SMEs (Málovics, 2009), both in terms of challenges and success criteria, the available resources and their combination (Radácsi, 2021), and organisational solutions and activities.

In our exploratory qualitative study, we used focus group discussions to explore the situation of sustainability and responsibility issues in Hungarian SME sector. Our research goals included the observation of the interpretations of CSR and sustainability, the related activities, and main stakeholders.

2. Theoretical background

The literature agrees that CSR activities are less visible in SMEs than in large companies, and surveys on CSR that include SMEs tend to be more pessimistic than those that focus only on large companies. This may be due to typically lower stakeholder pressure, limited access to finance and human resources, or the relative lack of awareness of entrepreneurs and employees (Radácsi, 2021), which may be true in general (lower levels of management, strategic planning and awareness), but also specifically in relation to sustainability issues and responsibility.

However, there is also the possibility that SMEs have not only less opportunity but also less need to deal with CSR, and in particular CSR communication as a prominent and emphasised part of their operations. SMEs are often found to engage in ‘implicit’ CSR activities (Matten & Moon, 2007). Due to their high degree of social embeddedness, they act as responsible citizens of their local environment, acknowledge their own impact and responsibilities, and address the interests of their stakeholders (e.g. employees, consumers, business partners, local communities and the natural environment (Vives, 2016)). At the same time, they do not use the term CSR and related terminology, tools and standards (Szlávik et al, 2006), do not carry out conscious stakeholder management or communication. For example, they do not tend to make a stakeholder map (e.g. based on the power, legitimacy or urgency of the stakeholder groups’ interests and needs, Mitchell et al. 1997), but, as will be explained later, they do establish a kind of prioritisation among their stakeholders.

SMEs tend to start using explicit CSR tools, typically quality assurance or environmental standards, when they are forced to do so, mostly because they want to become the supplier of a large company that requires it. Most standards and guidelines already cover the supply chain, with the aim of having measurable and accurate information on social and environmental impact of value creation, so that performance can be improved. In this context, it is interesting to note the positive vision of an EU document from more than 20 years ago, which has not yet been fully realised: “In the future, the most significant pressure on SMEs to adopt CSR practices is likely to come from their large business customers, which in return could help SMEs cope with these challenges through the provision of training, mentoring schemes and other initiatives” (EC, 2002).

In Hungary, there has been not any comprehensive research on CSR activities in recent years, and the few research on sustainability and CSR has generally examined just some specific examples (MPRSZ, 2017, BCSDH, 2017). Looking at the literature, some of the studies on the activities of SMEs only focus on the environmental dimension of CSR (Hortoványi, 2011, Kadocsa, 2012). In other studies, CSR is presented as a background factor (Kopfer-Rácz et al., 2013, Kása et al., 2017). Pieces of research using a complex CSR approach (Málovics, 2009, Benedek et al., 2016) provided a starting point for our study.

From the colourful range of topics on the relationship between SMEs and CSR, in this paper we mainly focus on CSR activities and related stakeholders, and so we will also look at these two topics in the literature section.

In his article on typical SME stakeholders and their impact on the chosen CSR activities, Perrini (2006) found that the most important stakeholders are related to the local community because of their proximity: employees, local authorities, investors, suppliers and people living in the local community. The closeness of the relationship with these stakeholders has a positive impact on CSR activity, and the identity of the most important stakeholders will largely determine the two or three CSR activities on which SMEs focus. Fisher and his colleagues (2008) use a Canadian case study to show how active stakeholder involvement increases the competitiveness and innovativeness of the company while creating social value for the local community. Looking at the Hungarian situation, the MPRSZ’ research (2017) shows that employees are the most important stakeholders, and the majority of activities is connected to them, especially for vulnerable minority employee groups such as mothers with small children of people with disabilities. However, CSR and the SDGs (Sustainable Development Goals, UN, 2015) are rarely integrated into benchmarking or strategic objectives.

Kopfer-Rácz et al. (2013) found that the manager takes responsibility for his employees, but employees also feel an emotional and moral responsibility for the company, so the personal relationship between the leader and the employees significantly determines the activities of the company. A study of SMEs in Italy found that most managers surveyed considered

employees to be the most important stakeholders in CSR communication, with customers, suppliers and business partners lagging far behind (Coppa & Sriramesh, 2013). Hungarian research (Csillag, 2008) also highlights the prominent role of employees in CSR activities of SMEs.

Some of the research on CSR activities focus specifically on environmental issues (as an aspect of CSR). The study of Zilahy and Széchy (2020) suggest that the eco-efficiency and the use of environmental management tools by SMEs lag behind that of large companies. Vörösmarty and Dobos (2020) found that there are also differences in green procurement practices between SMEs and large companies. Their research shows that SMEs are less aware of managing their supplier relationships and less likely to use advanced solutions for managing supplier relationships.

Matolay (2010) emphasizes that copying the good practices of larger companies can be a technique for improving CSR activities, at the same time there are some potential risks as well. E.g. if practices that require a lot of resources or effort become an example for SMEs, they will fail in implementation, while without these examples, based on their competences, they could carry out exciting and unique CSR activities.

3. Methodology and research questions

Our research is in its exploratory and hypothesis definitions phase, so the observed focus groups can be interpreted as preliminary research to develop a structured and systematic quantitative research based on a more detailed and punctual framework of the topic (Wilkinson, 1998).

Three focus group meetings were organized in May and June 2022 where the same moderator asked the same questions based on a preprepared guideline. The guideline was validated in a pilot round, and a prior screening questionnaire was used to gather information about the participants and the businesses they represent. When selecting the sample of experts, we considered it important to ask representatives of the SME sector who also consider sustainability important in their work. The sample is presented in Table 1 and respondents will be referred to by their chosen code name in the following.

Table 1: Sample of focus group research

Date of each FG	Participants	Represented company
05/10/2022	1. János, Male, 62 yrs, owner, CEO 2. Czafi, Male, 68 yrs, owner, 3. István, Male, 62 yrs, CEO 4. Lasek, Male, 53 yrs, owner	1. Engineering, Hungarian, Small 2. Coaching, training, Hungarian, Small 3. Trailer sales, International, Medium 4. Construction, building, Hungarian, Medium
05/26/2022	5. Évi, Female, 51 yrs, founder 6. Evedor, Female, 45 yrs, owner 7. Oglu, Male, 63 yrs, owner 8. Gábor, Male, 38 yrs, owner 9. Autosave, Male, 45 yrs, owner, CEO	5. Recycling, fashion, Hungarian, Small 6. Decoration, event, Hungarian, Small 7. Book publisher, Hungarian, Small 8. Consultancy, Hungarian, Small 9. HR software and IT, Hungarian, Medium
06/01/2022	10. H-S P, Male, 58 yrs, owner 11. Edu, Male, 58 yrs, owner, CEO 12. CTP, Male, 49 yrs, owner	10. Consultancy, Hungarian, Small 11. Education, Hungarian, Small 12. Construction, Hungarian, Medium

Source: Authors

We had several research questions related to sustainability and CSR. In this paper we present the results of three of them:

1. What are the associations, definitions and terms that respondents associate with responsibility and sustainability?
2. What are the activities related to sustainability in the respondents' businesses?
3. What are the stakeholder groups that are prominent in the life of the business and in the above activities?

The focus group discussions were structured around the concepts of sustainability and CSR, using a so-called funnel technique, where we moved from the general to the specific topics. The second and the last of the questions were based on a projective methodology, while the seventh was a practical test of Isenberg's model (Isenberg and Onyemah, 2016, Kolnhofer et al., 2022). The list of the questions/topics was the following:

1. Ice breaking – What is the company motto and mission? What are the key values?
2. Write down and then tell us what you think of those two words: responsibility and sustainability.
3. To what extent are sustainability and responsibility a guiding principle in your company's everyday operations?
4. Give a specific example, good practice, story where this has been reflected in the way your company operates.
5. What motivates the company/staff/management to do this?
6. What are the drivers and barriers related to these phenomena?
7. In your opinion, how can Isenberg's ecosystem model be interpreted in the context of sustainability and responsibility in Hungary today?
8. Conclusion – finish the sentence: my company is responsible and sustainable, because...

Each meeting was recorded, and conversations have been transferred to transcriptions which were investigated through broader content analysis using NVivo12 software. The code table was compiled in two ways: (1) prior to the interviews, closed codes were established on the basis of the literature and theoretical material (e.g. typical stakeholders). (2) after analysing and reading through the interviews, this was supplemented with open text-based codes. During the interviews, we used assisting sheets to record some responses, and the responses recorded on these sheets were also included in the analysis during the model testing and the first association test.

The coding was carried out by two experts, using the same code table to independently code the texts of the three focus group conversations. The comparison of the two coding processes demonstrates the scientific reliability of the research, which can be measured by the (Pearson correlation based) agreement index calculated by NVivo, which compares all codes one by one, aggregating the data to show a minimum (minimum) agreement of 68%, with 100% agreement for most codes; on average, 97.98% agreement (with a standard deviation of 3.96%). The results are thus presented combining the two coding processes.

4. Results

To answer our research questions we present our results in three ways (1) the responses to the assisting sheets (2) the results of content analysis using NVivo, here we show the results of both automatic (2a) and code table based (2b) coding, and (3) we also support our results with some exact quotations from the respondents.

In the first step (1), on the assisting sheet, participants were asked to write down in one sentence what they think of the two words “responsibility” and “sustainability”. The discussion was therefore preceded by an initial association, during which they wrote down their thoughts on paper. Here, the participants’ first thoughts on the concepts emerged. During the first focus group discussion, the two concepts were treated together. In the second and third sessions they were treated separately, as shown in Table 2.

Table 2: A selection of first associations of the terms “sustainability” and “responsibility”

Sustainability	Responsibility
<ul style="list-style-type: none"> - <i>let remain resources for future generations</i> - <i>family well-being, frugal operation, smaller ecological footprint</i> - <i>servicing the interests of HUMAN and the (living/not living) environment</i> - <i>protecting the environment</i> 	
<ul style="list-style-type: none"> - <i>FUTURE, we have no other way</i> - <i>awareness, health of my children, grandchildren, human well-being</i> - <i>natural capital, recycling, reuse, energy management</i> - <i>to try to minimize the exploitation of the earth's resources by me and my own acquaintances, and to show example that convey this</i> - <i>viable in the long term, no or minimal harming impacts, contributes to social well-being</i> - <i>overpopulation, global warming, technology, innovation</i> - <i>supporting customers with educating themselves on the topic, interpreting it for our own operations, low ecological footprint</i> - <i>attain the same or more with less work, to keep what you have</i> 	<ul style="list-style-type: none"> - <i>CREDIBILITY, to live as we say</i> - <i>human role, support, caring</i> - <i>future generation, every small step counts, awareness raising</i> - <i>show my family and others how important it is to create value and work for the planet</i> - <i>knowledge of consequences, impacts, compensation for them</i> - <i>my family's security, my children's future, charity, support</i> - <i>fair operation, social sensitivity (giving back)</i> - <i>to think, to take a stand for others</i>

Source: Authors

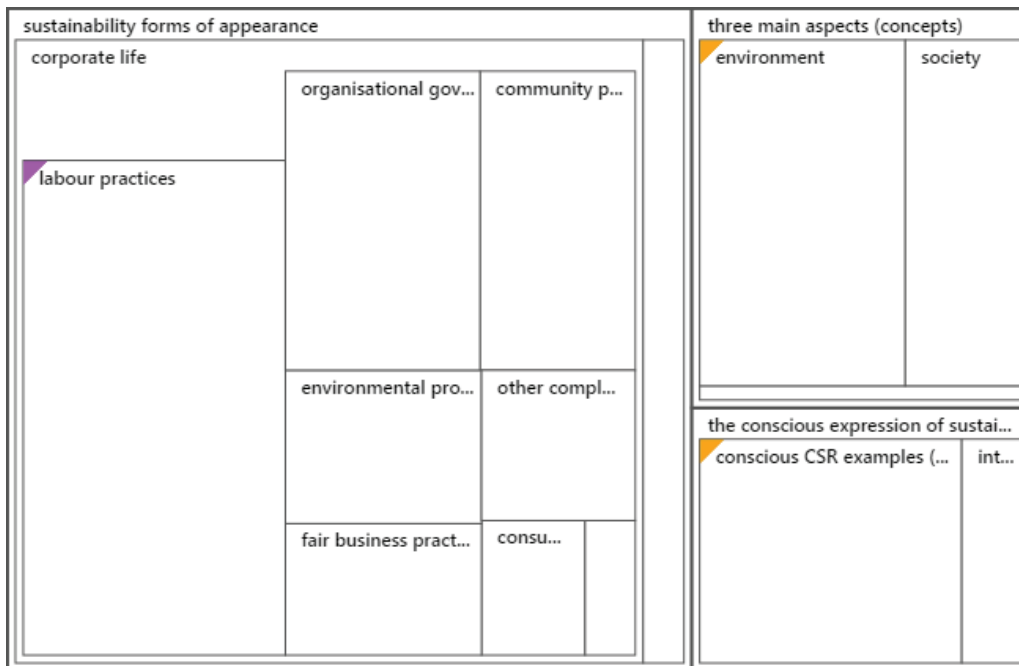
It can be seen that the notion of sustainability is more linked to the environment and the future of life, while the notion of responsibility is linked to social issues and business decisions, as well as the expectation and value of credibility in them. The future generation, as a factor, is represented at different levels of abstraction: on the one hand, at the level of one’s own family and children, and on the other hand, as a social category on a larger scale.

These results are also confirmed by the automatic coding process (2a). The most frequently used terms by respondents in the sentences described were “future”, “family”, “awareness”, “education”, “recycling”, “safety” and “consequences”. In the definitional sentences, respondents thus focused on the future generation and the impact on the future. Most of the concepts that appeared were also related to this, either in terms of an approach to preparing for the future or in terms of the impact of our current activities on the future. Also in the free discussion, the terms most frequently used by respondents were related to family, acquiring knowledge on the topic and impact on the future. According to the results of our interviews, prominent SME leaders have a sense of responsibility and are concerned about sustainability issues both in their private and entrepreneurial life. They think that modifying their activities to be more sustainable and responsible is a moral obligation.

It can be said that the focus of the opinions of experts with experience and knowledge of the subject is strongly influenced by personal motivation. *“I’m proud that we have been able to be in the general construction business for 24 years with virtually unchanged phone numbers, tax numbers and names. It’s very important to really put my name to it and to keep it together actively, so I’m there professionally and in all sorts of ways”* (Lasek). The importance of educating the next generation and the impact of business operations on the future is seen to be explicitly significant. For supporting this claim also with a quotation (3): *“Now, we can’t make a lower footprint here by using less photocopying paper or by collecting the once-a-week bin selectively, you do that too, but it’s really about education, say, to give this to thousands of students or corporate professionals”* (Edu).

Our second research question was for finding out what kind of sustainability-related activities are taking place in the businesses of the respondents. To do this, we analysed the relationship between the predefined codes (2b) based on the perceptions of the interviewed entrepreneurs. The relevant parts of the interview extracts are assigned to the corresponding codes. This coding process was done in parallel and the results were then cumulated into a single file, thus minimising the potential bias of our individual researcher opinions. Our measurements are based on the Jaccard index, which measures the similarity of set samples (McDonald, 2009).

The hierarchy diagram (Figure 1) shows that 3 elements of the codes stood out prominently. The frequency of occurrence of *“sustainability forms of appearance\corporate life\labour practices”* combination is extremely high, meaning that some form of sustainability is most often found in everyday labour practices. Regarding the consciousness of the specific activity, the *“the conscious expression of sustainability engagement\conscious CSR examples (planned)”* code gets the higher score, as opposed to ad hoc cases. The analysis of the three dimensions of sustainability (economic, social and environmental) has shown that entrepreneurs place great emphasis on environmental elements in their daily activities (*“three main aspects (concepts)\environment”*), while economic factors are not at all emphasised in terms of sustainability.

Figure 1: Hierarchy Diagram - manifestations of sustainability-related activities

abbreviations of codes: within corporate life: organisational governance, standardisation; community participation and development; environmental protection, environmental awareness; other complementary; fair business practices; consumer issues; within the conscious expression of sustainability_level of commitment: conscious CSR examples (planned); intuition-based CSR examples (ad hoc).

Source: Authors

Figure 1 shows the views of all focus group members where respondents talked about the area with the given code. The size of the rectangles indicates the frequency of mentions. On this basis, it can be said that those entrepreneurs who integrate sustainability as part of their everyday operations focus mainly on environmental impacts and address sustainability in a planned way, but still integrate sustainability in their labour practices in the corporate life.

We confirm our argumentations with some quotations from the participants (3):

“Control and done, it's alpha and omega, over and done. And it's not a resource, it's a person. So he's not a resource, he's a human being with emotions, knowledge, communication, cooperation skills, family background” (Czafi).

“I may have come from a different sector, I wrote about protecting the environment, of course I am aware that human resources are part of it. But in our sector, the environment is more important” (István).

As a connection between the second and third research questions, we can say that employees, the natural environment and future generations – represented by the family of the SME leaders and the employees – are the most important stakeholders. That is why activities related to them (eg. voluntary programmes, providing decent working conditions, eco-efficient process developments) are the most featured activities targeting a sustainable future. In answering the third research question more deeply, the analysis of the mentioned stakeholders (Table 3 shows our predefined codes) showed that, when comparing the appearance of each code, the personal values of the entrepreneur, manager and his family

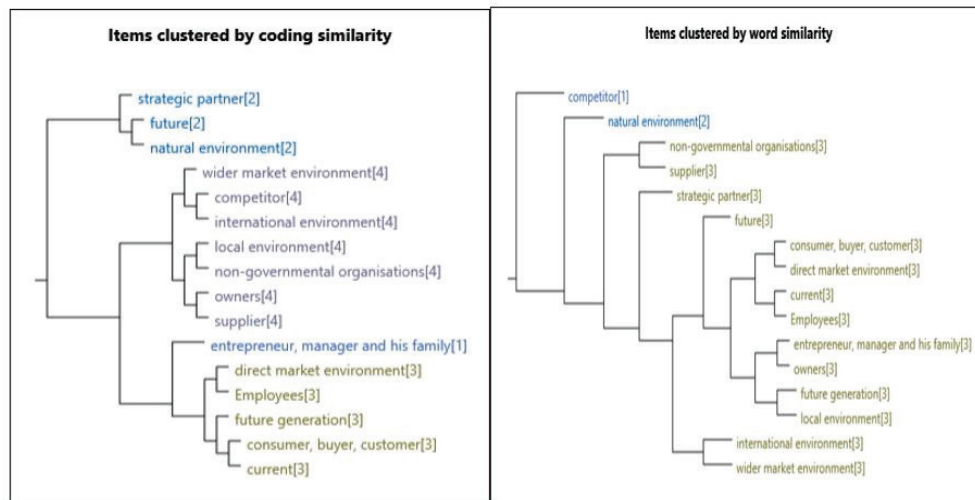
strongly influence the perception of the internal environment. Among the external environmental elements, the natural environment was mostly emphasized in the interviews. In addition, the impact on future generations and the responsibility of the business in this respect were frequently mentioned.

Table 3: Stakeholders and codes

stakeholders	internal	<i>owners</i>		
		<i>entrepreneur, manager and his family</i>		
		<i>employees</i>	current future	
	external	<i>direct market environment</i>		consumer, buyer, customer supplier strategic partner competitors
			<i>wider market environment</i>	non-governmental organisations local environment state, legal environment International environment
				<i>natural environment</i>
		future generation		

Source: Authors

We found that the codes can be sorted into four major clusters (Figure 2). The first cluster shows that that family values and traditions strongly influence leaders even in the case of sustainability related values. If they are more important in the family, they will be more important in the business as well. The elements in this code are distinct from other areas. Strategic partners, the future and the natural environment were mentioned in a similar context and felt interrelated by the interviewees, it's a separate cluster. The primary market, the employee, the customer and the future generation, who also appear in these two groups, were placed in the third cluster. These codes appeared in the same texts and similar contexts, which means that the respondents perceive these elements and stakeholders as belonging. According to the literature, all other elements (both internal and external stakeholders) were placed in the fourth cluster. Members of the SME sector are often vulnerable in their role as suppliers and have substantial market exposure in Hungary, that could be the reason why these elements are perceived not to influence them. However, it is interesting to note that the local environment is also included in this cluster. Further research is needed to investigate this.

Figure 2: Dendrograms of the codes

Source: Authors

The same co-occurrences were examined using a similar analysis technique for word similarities (Figure 2). Doing it, we observed differences from the code tree. Interestingly, the word similarities show complete separation of competitors, presumably because one of the most significant pressures comes from the massive competition in the SME sector. The natural environment as a prominent issue is a separate cluster. Due to the aim of the research, the discussions also revealed that sustainability and responsibility revealed in connection with the natural environment. Based on word similarity, we identified 3 clusters. The remaining items were interconnected, described by similar words in the same context.

5. Discussion and conclusion

We have found answers for our three research questions with the combination of different analysing tools as it was presented. Regarding the first question we found that there are differences in the first associations and terms using for defining sustainability and responsibility. The notion of sustainability is more linked to the environment and the future of life, while the notion of responsibility is linked to social issues and business decisions, as well as the expectation and value of credibility in them. At the same time, as a similarity, most of the concepts that appeared for the two notions were related to the future generation and the impact on the future. In accordance with the literature (Szlávik et al., 2006, Matten & Moon, 2007, Kása et al., 2017) respondents claimed that they did not use specific CSR tools, but we can claim that they have a sense and practice related to both sustainability and responsibility.

On the second question about the most typical CSR and sustainability-related activities, we stated that those entrepreneurs who integrate sustainability as part of their everyday operations focus mainly on environmental impacts and address sustainability in a planned way, but still integrate sustainability in their labour practices in the company life, just as in the research of Csillag (2008), Kopfer-Rátz et al. (2013) and MPRSZ (2017). It can be assumed that employees as a key stakeholder group for SMEs expect a higher level of responsibility, at the same time, they are the people to whom the entrepreneur can best transmit his or her personal values and beliefs, which, according to our research, are a decisive factor in the sense of CSR and sustainability activities of SMEs.

The findings for first and second research questions can be linked to the answers of the third one where we found that the primary market, the employee, the customer and the future generation appeared in the same texts and similar contexts, i.e. the managers perceive these stakeholders as belonging. One of the two other significant cluster of stakeholders was family (strongly connected to personal values), and the other one includes the strategic partners and natural environment, indicating that these areas are interconnected, too. Although these relations are not fully conscious, such as in the practice of large companies in drawing up a stakeholder map, they do show that stakeholders are present in the mindset of SME leaders, of varying degrees of importance. This result suggests that prioritisation is taking place and is linked to, for example, the CSR activities chosen.

6. Limitations, further research directions

Due to the nature of the methodology and the sampling itself, the results obtained cannot be extrapolated to a larger segment of the SME sector, but they form a good basis for operationalisation. As we have shown, qualitative techniques such as focus group discussions can be measured and supported by statistical calculations, which NVivo can and in our case did assist with, but accurate analysis and coding is unthinkable without close collaboration between researchers - something we have sought to do throughout the process and consciously.

In the next phase of our research, we will use questionnaire method to investigate the typical manifestations, activities of CSR and sustainability in Hungary, the motivations related to the topic, and the actors to whom Hungarian entrepreneurs attribute the most responsibility. In addition to their own contribution, our qualitative research has helped us to outline possible research questions that will allow us to identify the quantitative variables needed for measurement and to formulate them in terms (language) that are appropriate to the practice of SMEs.

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A scientific paper

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THE IMPACT OF COVID-19 PANDEMIC ON THE SME SECTOR AND THE POLICY RESPONSE IN CROATIA AND NORTH MACEDONIA

ABSTRACT

The global health crisis caused by the COVID-19 pandemic marked 2020 and 2021 and created numerous social and economic changes. Epidemiological measures to contain the pandemic led to a reduction of economic activity and a decline in sales in companies that were directly or indirectly subject to these measures. In order to overcome the challenges, many countries have implemented measures to mitigate the economic consequences of the pandemic, with a special focus on small and medium enterprises (SMEs), which make up a dominant part of national economies of most countries.

The aim of the paper is to provide a deeper insight into the impact of the pandemic on the SME sector in Croatia and North Macedonia, to provide an overview and critical review of the measures taken by governments to support the sustainability of SMEs during the pandemic.

Empirical research conducted includes primary and secondary sources. Secondary research relates to the collection of quantitative data on the performance of the SME sector in the pre-pandemic 2019 and pandemic 2020, and the comparison of indicators to identify the impact of the pandemic on sector performance. Publicly released (secondary) sources were also used to identify measures taken by the governments of Croatia and North Macedonia to support the sustainability of the SME sector. A pool of entrepreneurs and economic analysts were used as the primary source of information for a critical review of government measures to support SMEs during the pandemic. Data and reflections on the adequacy of the measures were also collected through reactions of the representatives of associations of entrepreneurs in the media, and previous research. The concluding part of the paper identifies positive aspects of the government measures to support the SME sector during the crisis and identifies recommendations in the form of lessons learned that can be useful to policy makers.

Key words: Covid-19 Pandemic, SME Sector, Policy, Support Measures, Sustainability.

1. Introduction

The COVID-19 pandemic spread to almost all countries in the world and its consequences are evident in various fields of society and economy. In the context of business, it can be observed that the pandemic created a novel and highly disruptive business environment. Due to the pandemic, many SMEs in 2020 were faced with many challenges, on both the supply and demand sides (OECD, 2020). On the supply side, enterprises faced a reduction in the supply of labour which was the result of measures to contain the disease by lockdowns, quarantines and restriction of movement, as well as interrupted supply chains and shortages of parts and intermediate goods. On the demand side, SMEs experienced a loss of revenue and a lack of liquidity, but also faced the problem of declining consumption resulting from major societal challenges and uncertainties, such as rising unemployment (OECD, 2020).

According to OECD (2021), small businesses were overrepresented in sectors that were most vulnerable to social distancing and associated trading restrictions. SMEs account for an average of 75% of total employment across OECD countries. Entrepreneurs were especially hard hit in the period from May to December 2020, when 55 – 70% of them saw their sales fall, with two thirds of these experiencing a fall of more than 40% (OECD, 2021, 3). Similar experience was observed in the European context where the EU – 27 SME sector experienced a sharp decline in economic activity in 2020, which was evident in the decline in generated value added by 7.6% and decline in SME employment by 1.7% in comparison to 2019 (European Commission, 2021).

Recently a growing trend of research related to the SME sector and the consequences of the COVID-19 pandemic can be identified (Kim, Lee & Jang, 2023; Aničić & Paunović, 2022, Clampit et al., 2021; Dai et al., 2021; Haneberg, 2021; Krishnan et al., 2022; Nyikos et al., 2021; Siuta-Tokarska, 2021; Thukral, 2021; Župerkienė et al., 2021). Some of the papers observed differences across industries, firm size and regions which led to the conclusion that not all firms were affected by COVID – 19 in the same way (Dai et al., 2021; Nyikos et al., 2021; Siuta-Tokarska, 2021). Those empirical results are in line with European Commission data which identifies the EU-27 industries in which SMEs were worst affected by the pandemic in terms of value added: ‘accommodation and food service activities’; ‘transport and storage’; ‘administrative and support service activities and ‘manufacturing’ (European Commission, 2021).

This paper, which focuses on researching the consequences of the pandemic on the SME sector, joins a growing research trend. The aim of the paper is to provide a deeper insight into the impact of the pandemic on the SME sector in Croatia and North Macedonia, to provide an overview and critical review of measures taken by governments to support the sustainability of SMEs during the pandemic. The empirical research was conducted using both primary and secondary sources of data. Secondary sources included quantitative data on the SME sector performance, and publicly available publications and information released by public institutions in both countries. The primary source of information for evaluating government measures to support SMEs during the pandemic were entrepreneurs and economic analysts.

The paper is structured as follows. Section 2 is dedicated to different firms’ responses to the COVID-19 crisis identified in the existing literature. Section 3 presents a description of the adopted methodology. In Section 4, the impact of the COVID-19 pandemic on SMEs in Croatia and North Macedonia, with a special emphasis on quantitative data is presented. Following this, in Section 5 a review of policy measures at the national level to support SMEs during the pandemic is created. Section 6 presents a discussion and conclusion which summarizes the main aspects of the government measures to support the SME sector during the crisis.

2. Responding to COVID – 19: crisis management, resilience and entrepreneurial behavior

SMEs account for the majority of businesses worldwide and present the backbone of the economy in many countries of the world. The specifics of their business operations, as well as their unique characteristics are defined by their size. Small firms face a liability of smallness, whereas crises and disasters create additional resource availability and liquidity problems (Eggers, 2020). At the same time, small businesses are more flexible and can respond better to external shocks than medium or large ones (Portuguez Castro & Gómez Zermeño, 2020). Those characteristics had a great impact on the response to COVID -19 and its consequences.

The emerging situation related to the pandemic can be identified with a situation that requires crisis management. Crisis management can be defined as the set of preparatory and response activities aimed at the containment of the threat and its consequences (Ansell & Boin, 2019). In order to deal with the crisis from COVID-19, an entrepreneurial orientation to coping with the problem and environmental change is needed (Ratten, 2020). Entrepreneurial orientation can be conceived as a powerful construct that explains how enterprises face an ever-changing environment (Hernández-Perlines et al., 2020). Based on Miller's (1983) conceptualization, three dimensions of entrepreneurial orientation have been identified: innovativeness, proactiveness and risk taking. Innovativeness is characterized by a tendency to support new ideas, experiments, and the use of creative processes that can result in the creation of new products, services, or technological processes (Lumpkin & Dess, 1996). Proactivity is a "pioneering" search for benefits while anticipating future market needs and desires, capitalizing on business opportunities, and introducing new products ahead of competitors (Rauch et al., 2009; Lumpkin & Dess, 1996; Covin & Slevin, 1989). Risk taking involves implementing bold actions that require a significant level of resources, without any certainty about the potential benefits (Rauch et al., 2009; Lumpkin & Dess, 1996).

In the context of crisis management, it is also important to mention resilience as a desirable entrepreneurial skill that allows enterprises to adapt and grow stronger in the face of challenges and various types of adversity. Resilience is theoretically considered as entrepreneurs' ability to adapt to change (Salisu et al., 2020). Resilient entrepreneurs, who display a high degree of open-mindedness for ambiguity and adapt swiftly to change, may be well equipped to succeed (Martinelli et al., 2018). Furthermore, the term 'resilience' has been used at the organizational level to describe the inherent characteristics of those organizations that are able to respond quicker, recover faster, or develop more unusual ways of doing business under duress than others (Linnenluecke et al., 2017). In other words, organizational resilience is defined as a "firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival" (Lengnick-Hall et al., 2011). Resilient behavior can be an appropriate response in the environmental uncertainty and can help an organization to adapt to changes and to recover more quickly in the crisis time. Being resilient involves thinking about potential risks and building up capital to try and deal with the crisis situation, respectively requires organizations to adapt to changes in the market before, during, and after a crisis (Ratten, 2020).

The importance of these entrepreneurial characteristics is evidenced by the existing research results which indicate that the crisis also brought many examples of entrepreneurial behaviour and small business creativity, often as a direct response to urgent societal needs, e.g. medical devices, disinfectants or liquidity solutions (OECD, 2020). Furthermore, entrepreneurial proactiveness can be observed in SMEs quick response and adaptation to digital tools which provided online operations and ensured continuity of business activities. Despite the many

challenges, SMEs have adopted smart working solutions and online sales platforms to connect with workers, suppliers and customers, and in most countries between 30% and 50% of SMEs increased their use of digital technologies during the crises (OECD, 2021).

In addition to the mentioned desirable internal entrepreneurial skills and characteristics, it is important to mention the external support that assisted SMEs to overcome the challenges caused by the COVID-19 crises. In that light, many countries implemented measures to mitigate the economic and social consequences of the crisis. According to the European Commission (2021, 41), the EU and Member States implemented many different support programmes, many of which were aimed directly at SMEs, while others could be accessed by enterprises of all sizes. These support programmes can be grouped into five categories: 1) financial instruments, including state guarantees, subsidised interest rates and the offer of advanced repayments; 2) direct grants; 3) deferrals and exemptions of certain payments, including corporation tax, social security payments, debt repayments, value added tax (VAT) and rent and utility bills; 4) employment policies, such as short-term work schemes and wage subsidies; and 5) structural policies, such as support with digitalisation and the transition to teleworking. According to the World Bank (2020), more than 130 countries have implemented some form of support to SMEs, such as debt finance (594 instruments), employment support (358 instruments), tax (314 instruments), business costs (136 instruments), other finance (64 instruments), demand (54 instruments), business climate (45 instruments) and business advice (35 instruments) (Aničić & Paunović, 2022). Unlike during the 2008 financial crisis when most European countries focused their policies on supporting the banking sector and large construction companies to overcome the crisis, this time the focus shifted to supporting small and medium-sized enterprises (SMEs) as they became the centre of policy attention (Juergensen et al. 2020). Governments recognized the vulnerability of SMEs during the COVID-19 crisis and prioritized providing them with the necessary support, as they believed that supporting SMEs is crucial for overcoming the crisis (Aničić & Paunović, 2022).

3. Methodology

This paper is based on research output created during the project “Impact of the COVID-19 pandemic on SMEs in China, Croatia, North Macedonia and Slovenia – recommendations for improvement of policy measures”. The aim of the research project was to provide a deeper insight into the impact of the pandemic on the small and medium enterprise sector in the four observed countries (China, Croatia, North Macedonia and Slovenia), to provide an overview and critical review of the measures taken by governments to support the sustainability of small and medium enterprises during the pandemic, and point to examples of good practice in entrepreneurial responses to recognize opportunities stemming from the pandemic, leading to innovative products, services, processes or business models.¹ The main aim of this paper is to offer a more profound understanding of how the pandemic has affected the SME sectors in Croatia and North Macedonia.² Additionally, it aims to present evaluative analysis of the measures implemented by governments to ensure the continuity of SMEs during the pandemic. The empirical research is based on both primary and secondary sources. Secondary sources of information were utilized to collect quantitative data on the performance of the SME sector in

¹ More about project in Alpeza, M., Krstinovska, A., Xi, Z., Has, M., Ang, S. & Lei, L. (2022): Impact of the Covid-19 Pandemic on SMEs in China, Croatia, North Macedonia and Slovenia - Recommendations for improvement of policy measures. Zagreb: CEPOR – SMEs and Entrepreneurship Policy Center. Available at: <https://www.cepor.hr/post-festum-osvrt-na-mjere-za-ocuvanje-gospodarske-aktivnosti-tijekom-pandemije-preporuke-za-donositelje-politika/> (accessed 20 February 2023)

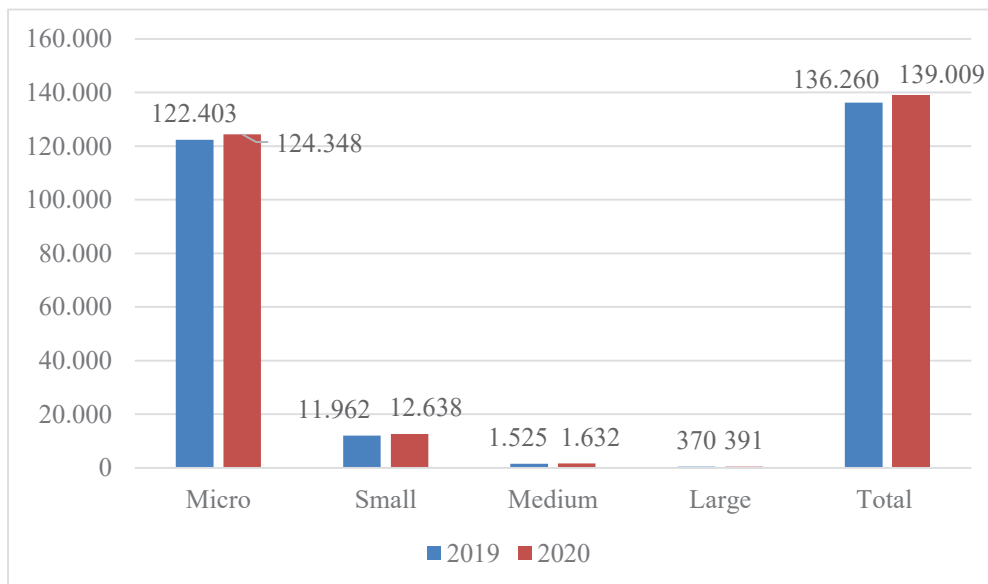
² All presented data presented in this paper is collected during the December 2021

2019 (pre-pandemic) and 2020 (during the pandemic), and to compare indicators to identify the pandemic's impact on sector performance. The sources of data included publications and data released by public institutions in Croatia and North Macedonia. Additionally, publicly released (secondary) sources were used to identify the measures that governments adopted to support the sustainability of the SME sector during the COVID-19 pandemic. Entrepreneurs and economic analysts were the primary source of information used for evaluating government measures to support small and medium enterprises during the pandemic. The insights from three conducted interviews with entrepreneurs and national experts were used to identify recommendations for better sizing and tailoring of these measures according to the needs of the sector. Apart from these primary sources, media statements by representatives of entrepreneurs' associations were also utilized to collect data and reflections on the adequacy and effectiveness of these measures.

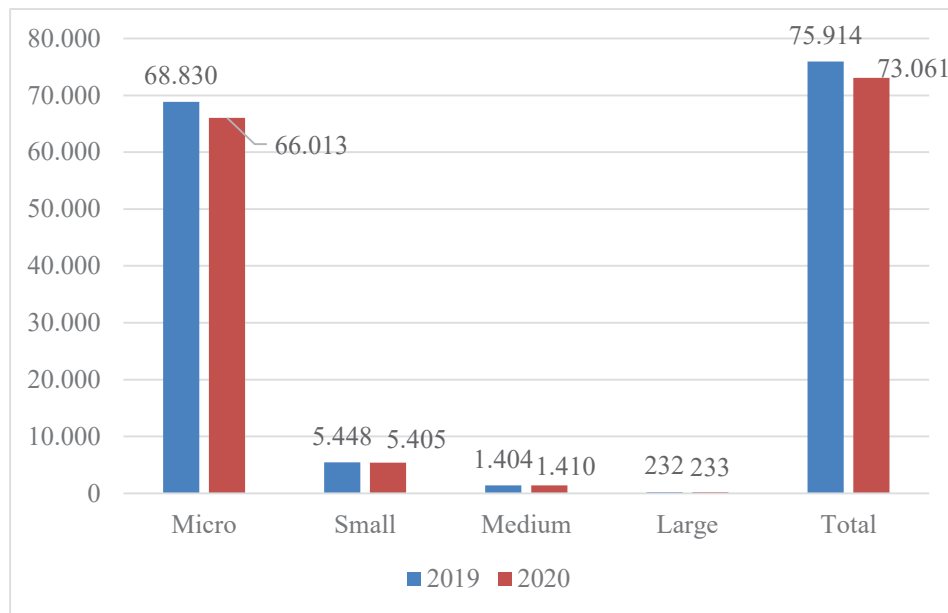
4. The impact of the COVID-19 pandemic on SMEs in Croatia and North Macedonia

The pandemic itself, as well as the restrictive measures undertaken both by Croatian and Macedonian authorities to contain the spread of the disease seriously affected SMEs. The impact, however, was not visible in the same manner in both countries. For instance, while the total number of SMEs in North Macedonia decreased by 3.8% in 2020 compared to 2019, mostly due to the closure of 2,817 micro enterprises (Figure 2), in Croatia there was an increase of 2% in the total number of active entities, as well as increase in all enterprise categories, including 2,728 SMEs more than in 2019 (Figure 1).

Figure 1: Enterprise structure in Croatia with regard to size in 2019 and 2020

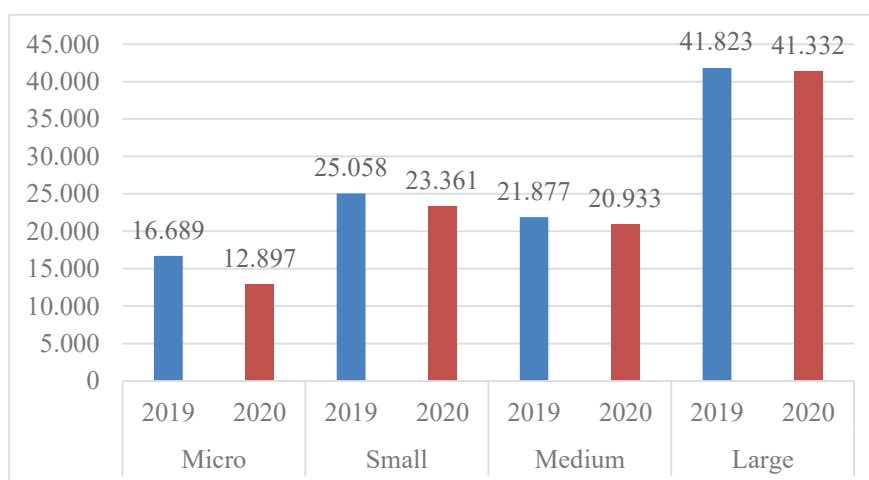


Sources: Adapted from "Results of Croatian entrepreneurs in 2019 classified by size", FINA, 2020 and "Financial results of entrepreneurs in 2020 - classified by size", FINA, 2021

Figure 2: Enterprise structure in North Macedonia with regard to size in 2019 and 2020

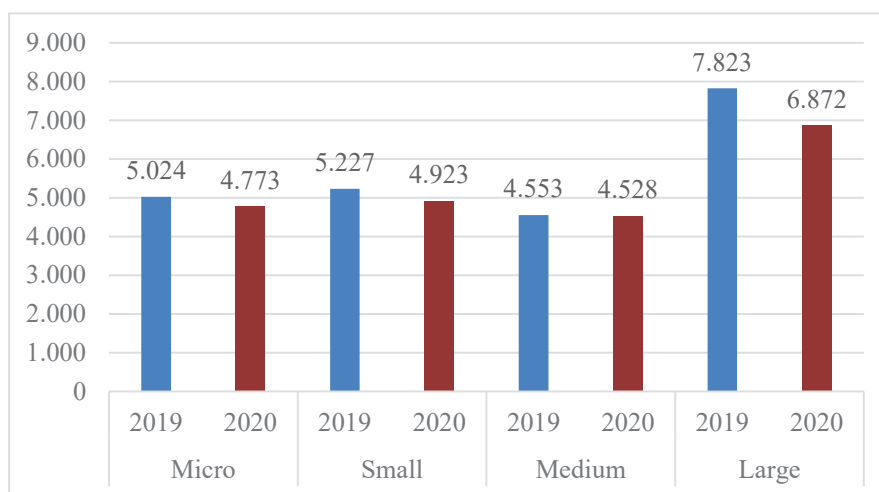
Source: State Statistical Office of North Macedonia (MAKSTAT database)

However, all company categories in both countries were affected by a decrease in their income in 2020 in comparison to 2019, which amounted on average to 8.8% in Croatia and 7.8% in North Macedonia. Companies of the same size were not equally affected in the two countries. Namely, large companies in Croatia recorded the smallest decline of 1.2%, while large companies in North Macedonia the biggest with a 12.7% drop in income. To the contrary, micro enterprises in Croatia were most affected with a 23% drop in turnover, while that parameter for Macedonian micro companies was only 5%. This situation could be partly explained by the significantly bigger closure rate for micro companies in North Macedonia, meaning that the micro companies with the worst performance had to cease operations and do not appear in the 2020 statistics. Small and medium companies had 5.8% and 0.5% decline in income respectively in North Macedonia, 7% and 4% in Croatia (Figures 3 and 4).

Figure 3: Enterprise size and total income (million EUR) in 2019 and 2020 in Croatia

Sources: Adapted from: "Results of Croatian entrepreneurs in 2019 classified by size", FINA, 2020 and "Financial results of entrepreneurs in 2020 - classified by size", FINA, 2021

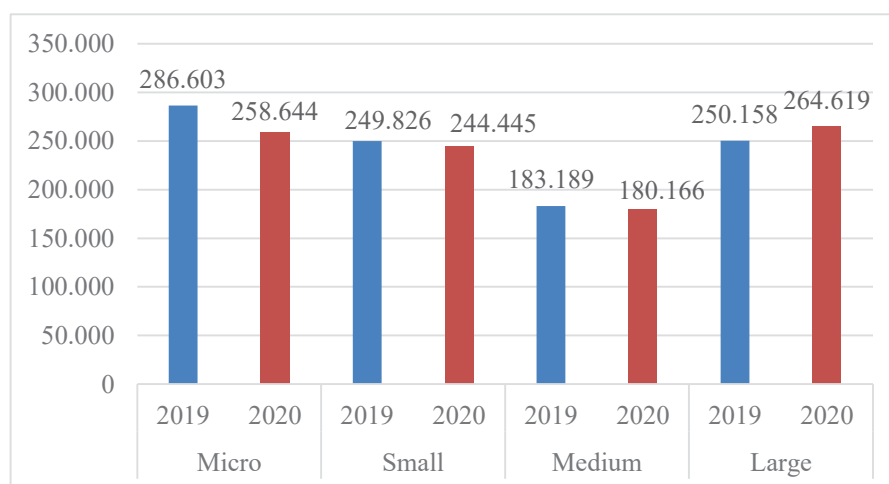
Figure 4: Enterprise size and total income (million EUR) in 2019 and 2020 in North Macedonia



Source: State Statistical Office of North Macedonia (Structural business statistics published for 2019 and 2020)

Based on aggregate data related to operations of the small and medium enterprise sector, the pandemic led to a decrease in the number of employees in Croatia by 5%. There were 36,363 fewer jobs in the small and medium enterprise sector in 2020 compared to 2019. More specifically, 28,000 jobs were lost in the micro enterprise sector, 5,400 jobs in small enterprises and 3,000 jobs in medium enterprises. To the contrary, almost 14,500 new jobs were created in large enterprises, which partially mitigated the decline in total employment in 2020 compared to 2019, which amounted to 2.2% or almost 22,000 jobs (Figure 5).

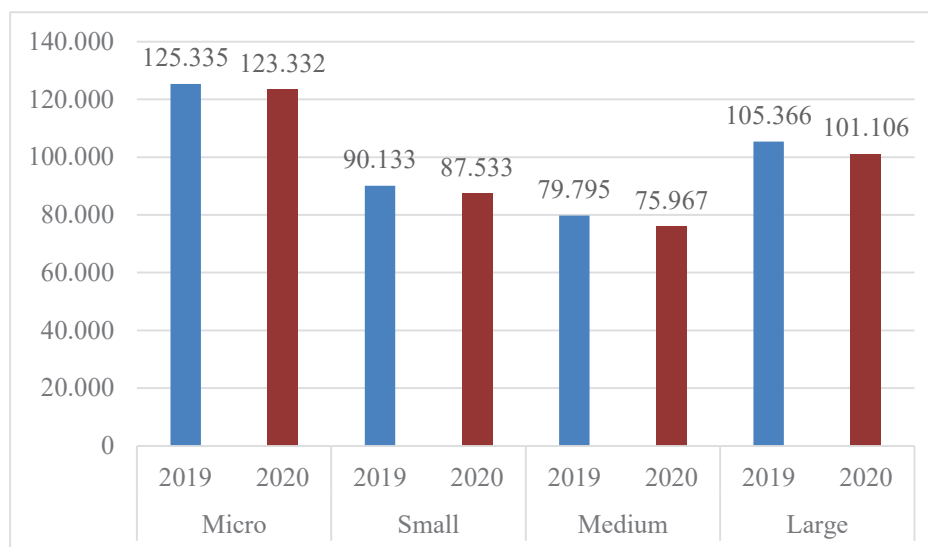
Figure 5: Enterprise size and number of employees in 2019 and 2020 in Croatia



Sources: Adapted from “Results of Croatian entrepreneurs in 2019 classified by size” FINA, 2020 and “Financial results of entrepreneurs in 2020 - classified by size”, FINA, 2021

The situation in North Macedonia was slightly different in the sense that the downward economic tendencies leading to a declining number of employees were felt across all company sizes. While the total private sector workforce shrank by 3.2%, or 12,691 job positions were lost, micro and small enterprises saw a decline of 1.6% and 2.9% respectively, while medium and big companies laid off 4.8% and 4% of the workforce respectively (Figure 6).

Figure 6: Enterprise size and number of employees in 2019 and 2020 in North Macedonia



Source: State Statistical Office of North Macedonia (Structural business statistics published for 2019 and 2020)

5. Policy measures at national and regional level to support SMEs during the pandemic in Croatia and North Macedonia

The authorities both in Croatia and North Macedonia adopted a series of measures aimed to mitigate the consequences of the pandemic and the restrictive measures for a range of affected stakeholders, including SMEs. The measures largely reflected the specific needs and features of the business sector in each state, as well as the country situation regarding EU membership. Namely, Croatia as an EU member state had to frame its policy response in the context of the broader EU response (European Commission, 2020), while North Macedonia as a candidate country to join the EU did not have such a direct constraint and had more leeway in shaping the policy measures. Both countries made use of various EU instruments and funds, with the availability and volume of such support for Croatia exceeding the assistance allocated for North Macedonia.

The key measures adopted by both governments and specifically targeting the SME sector are described as follows.³

5.1. Support for employment/job subsidies

On March 20, 2020, the Croatian Employment Service adopted measures of direct financial support to employers with the aim of retaining jobs with employers whose economic and

³ This paper focuses only on the most important measures targeting companies based on the financial implications and outreach (number of SMEs concerned). More detailed information regarding the measures can be found on the official websites of the Government of Croatia and the Government of North Macedonia.

business activity was disrupted or reduced due to extraordinary circumstances. The application for support in the first quarter (March-May 2020) could be submitted by: (a) entrepreneurs prevented from performing their activity by decisions of the Civil Protection Headquarters, (b) entrepreneurs in accommodation and food and beverage service activities, transport and storage activities, labour-intensive activities within the manufacturing industry (textiles, clothing, footwear, leather, wood and furniture), and (c) other entrepreneurs that can demonstrate the impact of “special circumstances” (Urban, 2020). Already in the first month of aid allocation, March 2020, the number of recipients exceeded 500,000 employees, and their growth continued in April and May 2020. It was calculated that the net support for the period will amount to EUR 821 million, with another EUR 371 million for mandatory social contributions.

Subsequently, the Croatian Government extended the application period for these measures, and in the period from September to December 2020, they were divided into (AiF, 2020):

- 1) Aid to micro-entrepreneurs if their income was reduced by 50% in the comparative period. The aid amounted to EUR 265 per employee, but they had to be employed prior to August 31, 2020.
- 2) Aid to employers from explicitly listed activities for the sectors most at risk, such as transport, storage (with special emphasis on air transport) and a wide range of activities related to the service and catering sector. The condition for receiving financial assistance was a drop in turnover of at least 60% for the previous month and it amounted to EUR 530 per worker.
- 3) Aid to employers who employ persons with disabilities which amounted to EUR 530 per worker, provided that the turnover of the related business entity fell by at least 50% for the previous month.
- 4) Aid for shortening work hours for employers employing 10 or more workers, where the precondition was a drop in turnover of at least 20% of the full-time fund if they employ 10 to 50 workers, and at least 10% if they employ 51 or more workers. The amount of aid was EUR 265 per worker.

The only exception in this case are the micro-entrepreneurs and employers who have been prohibited or prevented from working by the provisions of the *Civil Protection Headquarters* at the local, regional or national level. For the period until December 31, 2021, the amount of aid was EUR 530 per worker (in the period from January to February 2021, this included aid for the preservation of jobs for areas affected by the earthquake). As part of aid to employers, in cases where there had been a temporary reduction in the scope of work, a subsidy in the amount of EUR 477 per worker was paid.

In North Macedonia, job subsidies were offered for the most affected companies between March and May 2020, in the amount of up to 50% of the average salary paid in 2019 (or around EUR 240 net), provided that the company does not lay off staff at least until September 2020 and does not pay dividend or bonuses. As an alternative to salary subsidies, companies were allowed to ask for subsidies only to cover social contributions in the amount of up to 50%.

The option for subsidizing salaries was re-introduced for additional five months between October-December 2020 and February-March 2021. This time, the amount of the subsidy was contingent upon the decrease of the company’s turnover and could reach up to EUR 350 net.

5.2. Preferential or interest-free loans

The Croatian Agency for SMEs, Innovations and Investments (HAMAG BICRO) was tasked with the approval of loans with favourable interest rates for micro and small entrepreneurs. This type of aid was divided into “COVID-19 loans” for amounts up to EUR 50,331 (including the group of medium-sized entrepreneurs) and “Micro loans for working capital for rural development” and “ESIF Micro loans for working capital” for amounts from EUR 1,000 to

25,000. The Croatian Bank for Reconstruction and Development also enabled the use of various types of loans as temporary measures within the lending program for small, medium and large entrepreneurs (Ministry of Economy and Sustainable Development, 2020).

In North Macedonia, the first set of measures announced at the end of March targeted the tourism, hospitality and transport sectors since those companies were ordered by the Government to cease all their economic activities. An interest-free credit line amounting to a total of EUR 5.7 million was put at the disposal of SMEs through North Macedonia's Development Bank. The loans ranged between EUR 3,000 and 30,000, depending on the number of employees, with a grace period of 6 months and repayment over 2 years. With the second set of measures, additional EUR 8 million were put at the disposal of the most affected SMEs in the form of interest-free loans and EUR 50 million were disbursed through the commercial banks at an interest rate of around 1.5%, targeting SMEs willing to launch new projects, open new jobs or increase exports.

In the fourth set of measures, the European Investment Bank supplied the Government with EUR 100 million in low-interest rates loans which were disbursed through commercial banks. The grace period for the previously issued interest-free loans was extended for additional 3 months. The state also issued a guarantee of EUR 10 million as collateral aimed to help the companies secure additional EUR 65 million in loans from the commercial banks. The fifth set of measures introduced interest-free loans with a potential grant component of 30-50%, in the total amount of EUR 10 million, targeting sectors such as tourism, event industry, hospitality, transport and private healthcare providers; a state guarantee scheme of EUR 5 million to support the disbursement of EUR 30 million in loans from the commercial banks and another extension of the grace period for the previous interest-free loans.

5.3. Other support measures

In addition to job subsidies and improved access to finance, North Macedonia introduced sector-specific measures, such as grants for the most affected business entities (the hospitality sector, fitness centres, photo studios and travel agencies). The measures also included deferral of various taxes and duties, as well as vouchers to stimulate the domestic consumption for socially disadvantaged groups to purchase domestic products and services and two VAT-free weekends where the exemption applied only to domestic products. With a landmark decision on 26 March 2020, the Central Bank amended its methodology on loan risk management in order to allow the banks and other financial enterprises to postpone or extend the maturity of the loans issued to physical and moral persons and to introduce more favourable terms for loan reprogramming, lowering interest rates and extending grace periods of the loans issued to companies.

In line with the EU support framework, in Croatia, the additional measures also included direct grants, deferrals, tax reliefs and more favourable payment terms for various public duties, aid for research and development in the field of COVID-19, aid for investment in construction or upgrading of testing infrastructure and for the improvement of processes from the laboratory to the production level, aid for investments in the production of products essential for the control of the spread of COVID-19, recapitalization measures for non-financial entrepreneurs and aid for uncovered fixed costs.

Following the establishment of the Recovery and Resilience Facility at the European Union level, Croatia adopted its National Recovery and Resilience Plan 2021-2026 in July 2021. Its measures and activities aim to help the national economy recover after the crisis and create a more resilient and sustainable society in the event of new economic shocks (Government of the Republic of Croatia, 2021). With regard to strengthening the productivity and competitiveness

of the economy, special attention has been paid to reforms and investments aimed at “green” and digital transformation and achieving smart, sustainable and inclusive growth in general.

6. Discussion and conclusion

The COVID-19 pandemic had a profound impact on the SME sector in Croatia and North Macedonia. The disruption of business activity caused by the pandemic affected the flow of raw materials, labour, and other production factors required by enterprises, making it difficult for them to carry out production smoothly. This resulted in a significant decrease in sales channels, as finished products could not be sold due to market limitations and supply chain disruptions. The pandemic also exposed the absence of SMEs’ own risk mechanisms to cope with such a situation, revealing a need for better risk management and business continuity planning. On the other hand, the pandemic also created new opportunities for SMEs to explore, such as the need for digitalization and remote work solutions, as well as increased demand for certain products and services (Alpeza et. al., 2022).

In 2020, the Croatian business sector achieved a positive consolidated result, but it was nearly 33% lower than the previous year. The decrease was due to a 6% reduction in total profit and a 42% increase in total loss. The negative effects of the pandemic were mostly felt by large enterprises and least by micro and small enterprises in Croatia. This is because smaller enterprises were more agile and flexible in adapting to changes, and they also received government support. In North Macedonia, the pandemic affected 75% of enterprises, leading many employers to reduce salaries and lay off employees. About 4% of all registered business entities in North Macedonia, consisting of 2,846 micro and small enterprises, had to cease operations due to the pandemic.

The efforts to control the spread of the pandemic through epidemiological measures have resulted in decreased economic activity. To cope with the challenges brought on by the pandemic, governments in Croatia and North Macedonia introduced various measures such as direct grants, tax reliefs, more favourable payment terms, loan guarantees, subsidized interest rates on loans, short-term loan insurance, deferrals of taxes and/or social security contributions, subsidies for employees’ salaries or the income of self-employed persons equivalent to salary, and interest-free loans.

In Croatia, one of the most used measures during the COVID-19 pandemic was job preservation aid, which many entrepreneurs viewed as an appropriate government response to the new situation in March 2020, helping them save jobs or at least delay layoffs. However, in the long run, entrepreneurs believed that measures will not help them save businesses from collapsing, as entrepreneurs still have fixed costs to cover, regardless of whether they have employees or not (Alpeza et. al., 2022). Entrepreneurs expressed dissatisfaction with the adoption of measures related to the prevention of the spread of the disease and accompanying measures related to the operations of businesses in certain industries. The inconsistency, lack of coordination, and delays in the implementation of regulations, as well as the omission of certain activities when defining measures, led to confusion among entrepreneurs. Employers associated in the Croatian Employers’ Association – CEA, indicated that the National Recovery and Resilience Plan should provide for much more investment in the real sector, manufacturing, and the introduction of new technologies in order to create added value and new jobs. Most of the investments outlined in the plan are focused on public projects such as water management, transport infrastructure, and sewage. While these investments will benefit citizens' lives, they may not generate sufficient long-term job growth and economic growth (CEA, 2021).

The Economic Council of the Voice of Entrepreneurs association, consisting of micro, small, and medium-sized entrepreneurs, self-employed craftsmen, and private sector employees, shared a similar view. They stated that the National Recovery and Resilience Plan doesn't allocate enough funds to small and medium-sized enterprises, which will adversely affect the overall economy's recovery from the consequences of the COVID-19 pandemic. According to the National Recovery and Resilience Plan, 54% of the funds are allocated to support the economy, while the remaining 46% are directed towards reforms in the public sector. However, the 54% of aid to the economy is allocated towards public projects such as wastewater, waste management, road construction, and transport infrastructure. These projects are often managed by public companies that have previously shown low efficiency. As a result, some experts believe that this allocation of funds may not effectively support the private sector or promote competitiveness in the Croatian economy. For the National Recovery and Resilience Plan to have a greater effect, it is necessary to prioritize investments in the private sector, focus on high return projects and monitor the return on investment and fiscal effects. Additionally, they believe it is important to prevent corrupt distribution channels of funds and politically preferred projects (Voice of Entrepreneurs Association, 2021).

According to Macedonian national experts, there is an agreement that the government's response to the pandemic was appropriate given the size of the budget, and that it provided a significant boost to many SMEs, helping them to survive the initial wave of the pandemic. However, there is also an agreement that if the measures had been designed and implemented more effectively, their impact could have been even greater. Experts suggested that in order to minimize the pandemic's initial and strongest impact, the measures should have been implemented more promptly. However, one of the most serious deficiencies was the high level of bureaucratic procedures and paperwork that enterprises were required to complete and submit to qualify for assistance. Additionally, the guidelines and procedures were often unclear or subject to change, creating a significant administrative burden for small and medium-sized enterprises (SMEs). As SMEs typically have few employees and limited knowledge in preparing complex applications, this added to their challenges.

According to the president of the Business Confederation of Macedonia, the support measures provided during the pandemic had a social aspect, but did not fully consider the longer-term needs of SMEs. Although subsidies, loans, and tax relief measures provided temporary relief to entrepreneurs who faced reduced demand and liquidity, the uncertainty whether, when and how (much) they will need to return the received funds created bitterness among those who had been contributing to the economy through taxes for years. Additionally, the measures did not restore trust in the economy or encourage domestic consumption, as consumers were focused on saving money and avoiding non-essential purchases due to health concerns.

The significant reduction in domestic consumption was, in part, caused by the limited adaptability of SMEs and their lack of expertise and knowledge to innovate their offerings and target new markets and consumers. North Macedonia's SMEs have specific characteristics, such as entrepreneurs driven by necessity instead of opportunity, underdeveloped business skill sets and digital competencies among managers and staff, and undiversified company portfolios. Additionally, external factors such as high dependence on imports and exports and limited access to financing further hindered their ability to adapt quickly and overcome the crisis (Alpeza et. al., 2022).

In a survey conducted by the International Labor Organization – ILO in at the end of 2020, over half of all Macedonian enterprises (52%) either introduced new products or services or made modifications to existing ones. One-third of the enterprises lowered prices of selected products or services to boost sales and revenue, assuming that customers were highly price-sensitive.

Meanwhile, 25% of the enterprises expanded their customer outreach by offering delivery and online purchasing options. However, the same survey found that 61% of the enterprises were dissatisfied with the government measures, suggesting that there could have been improvements in terms of their inclusiveness, targeting, and criteria. Around one-third of all active enterprises used the government measures, with 44% of small enterprises, 41% of medium-sized enterprises, 36% of micro-enterprises, and 31% of large enterprises receiving support. Nevertheless, when it comes to supporting jobs, large enterprises were significantly favoured, with 50% of the jobs being supported compared to 29-32% of salaries in SMEs (Mojsoska Blazhevski, 2021). The most popular support measure among Macedonian SMEs was job subsidies, which helped to prevent a bigger increase in the unemployment rate. Subsidized loans were the second most popular measure.

At the end, it can be concluded that experts and entrepreneurs in both observed countries generally agree that the government response provided a significant boost for the economy and helped many SMEs survive the initial wave of the pandemic. However, there is also an agreement that if the measures had been better designed and implemented, their impact could have been even greater. The main criticisms of the governments' response to the pandemic were not about the support measures themselves, but rather about the way in which the epidemiological measures were defined and implemented. Due to inconsistencies, lack of coordination, delays in implementing regulations, and omission of certain activities when defining the measures, entrepreneurs faced significant challenges in adapting their operations to the changing conditions.

It is also important to keep in mind that one of the serious shortcomings of policy measures is related to the high level of “red tape” (forms and documents) that companies were supposed to collect and submit in order to be eligible for assistance, as well as the often unclear and/or changing procedures and guidelines. This turned out to be a significant administrative burden for SMEs who generally have few employees and often lack the knowledge to prepare complex applications.

In the short term, the measures such as subsidies, loans, and tax relief were helpful for entrepreneurs facing decreased demand and liquidity due to the pandemic. However, it is important to consider the long-term needs of SMEs as they are crucial for economic recovery and are often the largest employer.

This paper makes a valuable contribution to the literature on the impact of COVID-19 on entrepreneurship. It presents a systematic review of the performance of SMEs in Croatia and North Macedonia before and after the pandemic and compares the measures taken by the governments of these countries to mitigate the pandemic's effects. Furthermore, it highlights the positive aspects of the government measures to support the SME sector during the crisis and presents recommendations and lessons learned that could be helpful to policymakers.

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A scientific paper

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BUSINESS PERFORMANCE OF FAMILY FARMS DURING AND AFTER THE PANDEMIC COVID-19

ABSTRACT

The COVID-19 pandemic has rapidly changed the lives of all the people around the world and led to a dramatic decline in almost all economic activities. According to the OECD, the initial “supply shock” has turned into a “demand shock”, which has translated into a decline in consumption and spending by the vast majority of people. The impact of the global recession has also been recognized in the agri-food sector. The problems in global food supply chains pointed to the inadequacies of domestic production and national dependence on food imports. However, these identified trends had some positive connotations. “Short distribution chains” offered the opportunity to increase the production of family farms, new trends emphasizing local origins of food opened the door to new family farms, and the development of digitization and internet commerce influenced the development or improvement of operations in existing family farms. The aim of this paper is to identify the influence of the COVID-19 pandemic on the development or collapse, i.e. the success or failure of Croatian family farms. For this purpose, secondary research was conducted based on data collected by official statistics - the Croatian Bureau of Statistics, the Financial Agency and the Paying Agency for Agriculture, Fisheries and Rural Development. Primary research was also conducted using the questionnaire to collect data directly from the owners of family farms. All data collected during the research were analysed and evaluated using appropriate descriptive and multivariate statistical methods. The research results highlighted a connection between the implementation of digitization processes in family farms, especially in sales, and their business success. The final conclusion of the article is that the pandemic COVID -19 had a stimulating impact on the development of digital literacy and internet sales skills of family farm owners, which affected the success of their business.

Key words: *family farms, business performance, COVID-19 pandemic, digitisation processes.*

1. Introduction

From the beginning of its occurrence in 2019, COVID-19 pandemic has affected all aspects of human life around the world and has had a particularly negative impact on the overall

economy. Transmission of the disease has put people's health and even lives at risk, and almost overnight COVID-19 became one of the leading causes of hospitalization and death. To limit the global spread of the virus and reduce the potential damage, the governments and central administrations of many countries decided to implement a partial or complete lockdown. This radical decision has helped to protect people's health, but on the other hand it has also threatened the livelihood of many people. Industries (except those that produced existential goods), shops, schools, service providers, as well as most institutions were closed down and, as a result, all types of transport and distribution dropped to very low levels. The OECD (2020) called this situation a "supply shock". The phenomena described caused a drop in income and a drastic slump in consumption, which had a direct negative impact on demand - "...households limited their spending, for both objective and precautionary reasons, because of the pandemic and containment measures, surrounded by heightened uncertainty..." (CNB, 2020, 39). The "supply shock" was thus followed in the very short term by a "demand shock" (OECD, 2020). One could conclude that COVID-19 had begun the downward spiral that has the whole world hurtled toward serious problems. Generally, Haleem, Javaid and Vaishya (2020, 78) identified several main economic impacts of COVID-19 and categorized them as follows:

- slowdown in the production of essential goods
- disruption of the supply chain of products
- losses in domestic and international business
- poor cash flow in the market
- significant slowdown in revenue growth.

In light of the events at the global level, many countries had partially or completely closed their borders, which caused a reduction in the flow of goods in international trade. This led to price distortions, not only for the goods that were still available in the international supply chains, but also for the remaining stocks of previously imported goods, which logically led to inflationary price pressures in the long run. Despite the general drop in demand, import-dependent countries were unable to switch to national production of all necessary basic goods in the short term, especially those produced in the agricultural sector. The crisis of COVID has highlighted the problem of the fragility of modern food systems and supply chains, which have already proven highly vulnerable to the impact of external threats such as climate disasters, political crises, energy supply and similar disruptions. One of the most comprehensive analysis of the risks caused by the pandemic COVID-19 in the agricultural sector was carried out by Sharma et al. (2020) who empirically analysed a sample of Indian micro, small, medium and multinational enterprises and identified the following risks: supply-side risk, demand-side risk, logistics and infrastructural risk, policy and regulatory risk, financial risk, biological and environmental risk, management and operational risk, weather-related risk and political risk. All of the above risks are inherent in agricultural activity, but the impact of the pandemic has further increased their influence. However, Sharma et al. found that not all risks are equally present in all enterprises, but vary according to enterprise size.

Since the focus of this paper is on family farms, only those risks relevant to micro-enterprises will be addressed. According to the aforementioned research, the impact of financial risks was found to be the greatest, due to difficult access to financial support and lower direct sales. In addition, logistics and infrastructural risks due to labour shortages, inadequate supply chains and insufficient services from logistics providers were rated as very important risk for the agricultural sector as a whole. Labour shortages in particular, which affect large enterprises the most, are one of the main reasons for the more intensive involvement of family farms as

suppliers in agricultural product markets. Family farms have proven to be more adaptable to the new business conditions, as production in them depends mainly on family members and the rational use of internally available capacities and resources.

This brings us to a new question: the question of digitalisation, which appeared to be a necessary precondition for communication between family farms as suppliers on the one hand and individual buyers on the demand side on the other. Given the limitations in direct contacts caused by the pandemic, suppliers were forced to resort to modern digital online sales tools and digital distribution channels. Up to this point, the digitalisation of agriculture was equated with the use of new technologies in production with the aim of “managing nature”. Rizov (2020, 717) concludes that digitalisation “leads to fundamental organisational change, away from traditional family farms and towards corporate forms, with associated impacts on rural employment and livelihoods, in addition to productivity gains and minimum efficient scaling. Recent evidence from digitalisation in agriculture suggests that new technologies require the development of skills in abstract and analytical skills that replace skills in routine tasks.” A new dimension of the use of digital technologies in agriculture comes from the digitisation of the sales function. It meant the implementation of network channels, websites, online shops in business models that ensured survival, i.e. the realisation of competitive advantages. In this segment, small family businesses proved to be very adaptable forms of organisation. Due to the limitation of the necessary capacities, they could not be the carriers of the implementation of digitalisation in the production process. However, family farms have taken a leading role in implementing digital technology in sale and have thus become carriers of agricultural activity in the pandemic.

The paper consists of four parts. After the introductory part, the Croatian experience with the impact of the pandemic is discussed. Special attention is given to the effects of the pandemic on the agricultural sector and the most important indicators from secondary sources are presented. The third part of the paper deals with the primary research and its results. This part includes data collected directly from family farm owners regarding their attitudes towards the impact of COVID-19. The paper ends with a conclusion highlighting the main findings.

2. The Croatian experience with the impact of the pandemic on the overall economy, with a particular focus on agriculture

Due to the pandemic of COVID-19 that has affected the whole world, all countries have been extremely affected economically. Namely, the peculiarity of this crisis was that it was not due to financial or business matters, but to health problems. It caused a whole series of shocks that had a negative impact on all economies, but the open economies (of which Croatia is one), which depend on imports of a significant part of the goods they need and on exports of services, were hit particularly hard. In analysing the economic crisis triggered by the health shock of the COVID-19 virus infection, Čavrak (2020, 8) concluded that, unlike previous recessions and depressions, it triggered four negative shocks at once:

- a supply shock,
- a demand shock,
- the shock of negative expectations and uncertainty and
- the potential shock of untimely and inappropriate macroeconomic responses/reactions.

Before the virus appeared, the Croatian economy was in a relatively favourable situation. All sectors of the economy: industrial production, construction, trade and the most important

branch of the Croatian economy – tourism - recorded an increase in their volume of activity. Industrial production expanded, with the exception of some kind of processing industries and mining. An intensification of activity was recorded in the construction sector, where the volume of work increased by more than 8% on an annual basis in 2019. The country's trade turnover also increased, and positive trends were recorded in foreign trade turnover in the form of faster export growth compared to import growth (CES, 2020, 10). For Croatian tourism, 2019 was the best year ever, with almost 20 million arrivals and 91 million overnight stays, and the positive trend is expected to continue (CBS, 2020). This situation had a positive impact on the labour market which was characterised by high employment. In addition, interest rates were extremely low and money was "cheap" and easily available.

Table 1 provides an insight into some basic indicators of economic activity in Croatia over a five-year period, i.e. before, during and after the strongest wave of the COVID-19 expansion.

Table 1: The most important macroeconomic indicators of the Croatian economy before and after the COVID-19 pandemic

SELECTED INDICATORS	2017	2018	2019	2020	2021
GDP (million EUR, current prices)	49.516	51.933	54.784	50.451	58.207
GDP year-on-year rate of growth (in % constant prices)	3,4	2,8	3,4	-8,6	13,1
Average CPI year-on-year inflation rate	1,1	1,5	0,8	0,1	2,6
Exports of goods and services (as of % GDP)	49,7	50,2	51,5	41,5	50,0
Imports of goods and services (as of % GDP)	49,0	51,1	51,8	48,6	52,7
Current account balance (million EUR)	1.719	931	1.576	-268	1.022
Current and capital account balance (million EUR)	2.179	1.605	2.480	807	2.429
Unemployment rate	11,2	8,4	6,6	7,5	7,6

Source: Authors, according to CNB, 2023

As the data presented shows, there was a positive trend and continuous GDP growth from 2017 to 2020, which was abruptly interrupted by the pandemic. The decline was mainly due to the lockdown, which caused a dramatic drop in services exports. This is an expected reaction, as tourism and the tertiary services sector dominate the structure of the Croatian economy and they are extremely vulnerable to foreign shocks and problems in the international environment, especially in the EU. This sensitivity was consequently transferred to all other related and tourism-dependent sectors. Insufficient adaptability of tourism to market changes caused by an exogenous shock can be extremely dangerous in conditions where it is highly involved in value creation. Some authors (Tuncay & Özcan, 2020; Zhang & Yang, 2019; Ghalia & Fidrmuc, 2018) explained the dependence of certain economies, especially Mediterranean ones, on tourism as Dutch disease¹, i.e. an economic phenomenon that refers to the harmful effects of a sudden increase in a country's income caused by a significant increase in revenue due to the development of tourism. Even if, on the one hand, revenues increase, on the other hand, deindustrialisation and the potential long-term loss of welfare threaten the balanced development of the country. The necessary diversification must not be neglected, and that side is often lacking in practise.

¹ Dutch disease is the name given to an economic phenomenon that originated in the 1960s when, with the discovery of natural gas deposits in the North Sea, the Netherlands began to export significant quantities of natural gas and generate substantial revenues from it. At the same time, however, there was an unexpected economic slump in the economy as production and exports from other sectors fell enormously.

The decline in economic activity was accompanied by disruption in the labour market. The number of unemployed increased in almost all sectors of the economy, with a dramatic increase in the average number of unemployed people previously working in the hospitality, food and beverage or entertainment and leisure industries.

When analysing the impact of the pandemic of COVID-19 on agriculture, which is the focus of this paper, it was found that this sector also suffered initial losses. Due to the nature of the agricultural activity, the losses were somewhat smaller at the beginning, but after a certain period of time the decline in agricultural production corresponds to the decline in other sectors. The main indicators of agricultural activity in Croatia over a five-year period are shown in Table 2.

Table 2: The most important indicators of the Croatian agricultural sector before and after the COVID-19 pandemic

SELECTED INDICATORS	2017	2018	2019	2020	2021
The share in the GDP (in %)	0,3	0,3	0,3	0,4	0,4
Exports of agricultural products (million EUR)	1.917	2.082	2.218	2.401	2.824
Imports of agricultural products (million EUR)	2.963	3.094	3.480	3.280	3.822
Number of full-time employees	50.227	50.680	52.544	53.756	54.554

Source: Authors, according to: Ministry of Agriculture, 2022

According to official EU data (Eurostat, 2022), in the developed EU countries: Germany, France, Italy, Spain and Netherlands, the share of agriculture in GDP before the pandemic (2018) was respectively: 21,1%, 14,8%, 11,1%, 7,5% and 4,9%, i.e. in 2020 it increased to: 25,3%, 17,2%, 12,3%, 8,3% and 5,9%. The same share reached only 0,3% in Croatia in 2018 and 0,4% in 2020, putting the country at the bottom of the EU. In the observed five-year period, the foreign trade deficit in agricultural and food products was constant and amounted to around EUR 1,000 million. Exceptions are 2019, when it increased by EUR 200 million, and 2020, when it decreased by the same amount compared to the average size. While in the pre-pandemic period the ratio of import to export coverage of agricultural products was 63,7%–67,3%, this ratio improved during the pandemic and reached a ratio of import to export coverage of 73,9% in 2021. This is a significantly better ratio than the average of the other products participated in the country's foreign trade.

Data on the number of employed persons show a slight upward trend during the observed period, and when agricultural employment is expressed as a percentage of total employment, it can be noted that the agricultural sector employed only about 3% of the total employed population. A similar trend can be observed for "Agriculture, forestry and fishing" across Europe. Although its share in total employment has been steadily declining, the agricultural sector employed almost the same share of the country's labour force in most European countries (World Bank, 2021).

Arčabić (2020) analysed how the decline in the growth rates of the gross domestic product in the Eurozone countries and the growth rate of the national gross domestic product affect the value added of the individual sectors. He found that all sectors experienced a decline in value added due to the so-called "foreign shocks", but the sensitivity was more pronounced in agriculture when the so-called "domestic shock" was taken into account. A significant part of the analysis in the paper relates to the study of the mutual influence of sectors, quantifying the transmission of shocks from one sector to others through the so-called "spill-over index".

While at the country level the spill-over between sectors in Croatia is estimated at a high 64,1%, from which it follows that only 38,6% of the changes are caused in the sector itself, the indices for agriculture are presented in Table 3.

The first column shows the index of spill-over effects from the agricultural sector to others (shocks transmitted), the second column shows spill-over effects by sector (shocks received). The reported negative value of net transfers indicates that the agricultural sector can be identified as a net recipient.

Table 3: Spill-over of shocks in the agricultural sector

Agricultural sector	Transmitted to	Received from	Net transfers
Manufacturing	6,76	9,33	-2,57
Processing industry	5,41	8,38	-2,97
Construction	4,12	3,64	0,48
Commerce / Retail	1,48	8,29	-6,81
Information technology	4,34	11,95	-7,61
Financial services	2,72	2,75	-0,03
Real estate	3,57	6,23	-2,66
Other services	4,53	6,49	-1,96
Public sector	0,60	1,01	-0,41
Other	5,39	4,87	0,52
TOTAL	38,92	62,94	-24,02

Source: Authors according to: Arčabić, 2020

The aim of the analysis in this paper was to take a closer look at the situation in Croatian agriculture and to gain insight into the attitudes of the affected farm owners/managers towards the impact of the pandemic on their business and the results achieved. For this purpose, an analysis of the structure of enterprises whose main activity for which they are registered is precisely agricultural production was carried out, and the data on the number of enterprises by legal form and by agricultural area used by each form are presented in Table 4. On the basis of these data, a decision is made on the formation of the sample for further investigation.

Table 4: Structure of the agricultural sector in 2020

Agricultural sector	Number of holdings	Utilised agricultural area in hectares
Business entities	4.434	276.730
Family farms	139.493	954.750
Agricultural holdings	143.927	1.505.430*

* The resulting difference in the areas used is registered as common land or is owned by holdings with organic farming

Source: Authors according to: CBS, 2022

Regardless the fact that agricultural business entities possess and use on average ten times more land area than family farms, the number of family farms, the total area they use and the assessment that these forms of organisation have demonstrated the ability to better adapt to changing economic conditions in a relatively short period of time influenced their selection in the study sample.

In the next chapter, the sample, the methods and the results of the research are explained in more detail.

3. The attitudes of the family farm owners towards the impact of the pandemic

As described in the previous chapter, lockdowns led to shortages in procurement markets worldwide and the supply risk had a significant impact on the agro-food business systems. All systems, but especially the largest, suffered from the suspension of field activities and faced rising operating costs. Although scholars and practitioners (Kamble, Gunasekaran, Gawankar, 2020; Sharma et al., 2020, etc.) argue that large companies should drive development as they are more likely to invest in and adopt sophisticated autonomous decision-making tools such as Big Data analytics, blockchains, artificial intelligence platforms and machine learning algorithms that can help analyse real-time data, provide insightful market information and constantly re-evaluate and re-plan, the pandemic problems and responses from the field have shown that these systems have been sluggish in responding to the emerging situation.

Moreover, in view of the measures introduced to restrict all movements, people increasingly oriented themselves towards local producers and supply at local markets, which meant short supply chains that could be realised without major problems despite the pandemic. There was a networking of producers and consumers in narrower geographical areas and a new form of social communication developed, which mainly took place via social networks. “Logistics disruptions combined with the temporary closure of some key commercial channels for agricultural products (e.g. fairs, markets and food service) pushed some European farmers to look for alternative business solutions to sell off existing stocks and prevent further losses. It is in this context that many farmers - alone or in collaboration with other institutional and/or business partners (e.g. online platforms, offline retailers) - have contributed to the creation of short supply chains or reinforced those already in place. Public campaigns aimed at encouraging consumers to buy national and local products during the pandemic to help the domestic farming sector were rolled out” (Montanari et al., 2021, 30).

Under the new conditions, family farms used their size and their lower vulnerability to labour market disturbances due to their predominantly family labour force as a comparative advantage. But not all European experiences were equal, and this is well illustrated in the paper by Bokan & Menardi (2022). In Belgium and Germany, for example, production increased as producers adapted to short food supply chains and consumers recognised the benefits of local products and switched to buying from family farms. In the Netherlands and France, on the other hand, due to the decline in exports and logistics difficulties, stocks of agricultural products began to accumulate and the state authorities were forced to take measures obliging large supermarket chains to buy products from local family farms. The reaction of Croatian family farms to the opportunities and threats arising from the COVID -19 crisis was investigated by a survey, the details of which are presented below.

A questionnaire was used as the research instrument and the survey was conducted between January and March 2022. The empirical study was conducted with a sample of 310 respondents. The respondents were selected randomly, but the aim was to achieve a representativeness of respondents in the sample that corresponds to the structure of family farms by county. Data processing using descriptive statistics methods was carried out with the programme package IBM SPSS Statistics Version 27. The survey was conducted in two cycles. In the first round, the survey was sent by email in

the form of Google form to owners of family farms whose e-mail addresses could be found on their farm websites. Due to the shockingly low response rate (about 7%), the survey was then published on social networks, in groups where family farms offer their products for sale, and in just a few days the number of surveys collected has doubled.

Table 5: Structure of family farms in the Republic of Croatia by county in 2021 and corresponding structure of the sample

Counties	Number of agricultural holdings	Number of family farms	Share of family farms by county (in % of the total number)	Respondents in the sample	
				Number	%
Zagreb County	14.260	12.497	8,9	26	8,4
Krapina – Zagorje	9.039	7.017	5,0	16	5,2
Sisak – Moslavina	9.376	7.844	5,5	16	5,2
Karlovac	6.845	5.010	3,5	12	3,9
Varaždin	8.160	6.053	4,3	16	5,2
Koprivnica – Križevci	9.682	8.345	6,0	18	5,8
Bjelovar – Bilogora	11.124	9.490	6,8	22	7,1
Primorje – Gorski Kotar	4.118	3.083	2,2	8	2,5
Lika – Senj	5.195	3.938	2,8	8	2,5
Virovitica – Podravina	6.504	5.842	4,1	12	3,9
Požega – Slavonia	5.115	3.619	2,6	10	3,2
Brod – Posavina	7.329	5.920	4,2	12	3,9
Zadar	8.305	7.477	5,3	16	5,2
Osijek – Baranja	12.634	10.430	7,4	22	7,1
Šibenik – Knin	5.386	3.949	2,8	10	3,2
Vukovar – Sirmium	7.600	6.287	4,4	14	4,5
Split – Dalmatia	13.313	12.372	8,8	26	8,4
Istria	6.613	5.616	4,0	12	3,9
Dubrovnik – Neretva	8.215	7.580	5,4	16	5,2
Međimurje	4.738	3.724	2,6	8	2,5
the City of Zagreb	6.508	4.781	3,4	10	3,2
	170.059	140.874	100,0	310	100,0

Source: Authors according to: PAAFRD, 2022 & authors' survey

As far as demographic data is concerned, men predominate among the surveyed owners of family farms (in Virovitica County even 91,7%), with the exception of Međimurje County, where women account for 62,5%. The age structure is balanced, only 6,8 % are under 25 years old. It is important to note that before Croatia's accession to the European Union, the proportion of older farmers was significantly higher than it is today, and that the structure has changed thanks to EU incentives that offer young people various forms of financial support in the form of grants for their involvement in agriculture. Although according to the agency's data, people with low levels of education predominate among owners of family farms, the survey found the opposite. According to the survey data, 53,5% of the respondents have a high school diploma, while 41% have even a higher education degree. The reason for this discrepancy lies in the fact that people with a low level of education, unlike the highly educated, generally refuse to participate in a survey, either because they cannot work with a computer or because they fear misuse of their data.

In the second part, where data on the characteristics of family farms were asked, the following conclusions were drawn:

a) Predominant production on family farms

Family farms in Croatia produce agricultural products depending on the region in which they are located, as climate, soil and relief influence the success of growing certain agricultural crops. Accordingly, cereal production is most developed in the counties on the Croatian mainland, meat and milk are mainly produced in the mountainous regions, while olive oil production is most widespread in the coastal regions of Croatia thanks to the Mediterranean climate. Fruit and vegetables, the two most represented crops (16.7% of family farms report that they earn most of their money from the sale of fruit, while 14.1% owners say that the sale of vegetables is their main source of income), are produced in all counties.

b) Members of the family farms

For the majority of respondents, 34,3%, the owner of the family farm is also the only member. Since membership does not incur any additional costs and each member can be employed by another employer, it would make strategic sense to recruit as many members as possible for the family farm. In this way, the owner provides labour within the household without having to hire external workers, which proved to be a very acceptable option during the pandemic.

c) Assets of the family farms

In Croatia, the law stipulates that each family farm must have its own agricultural land, and depending on the registered activities and the products and services offered, it may also have various equipment and machinery, transportation equipment, storage facilities etc. The majority of family farms from the sample, namely 78,1%, own at least one of the mentioned assets.

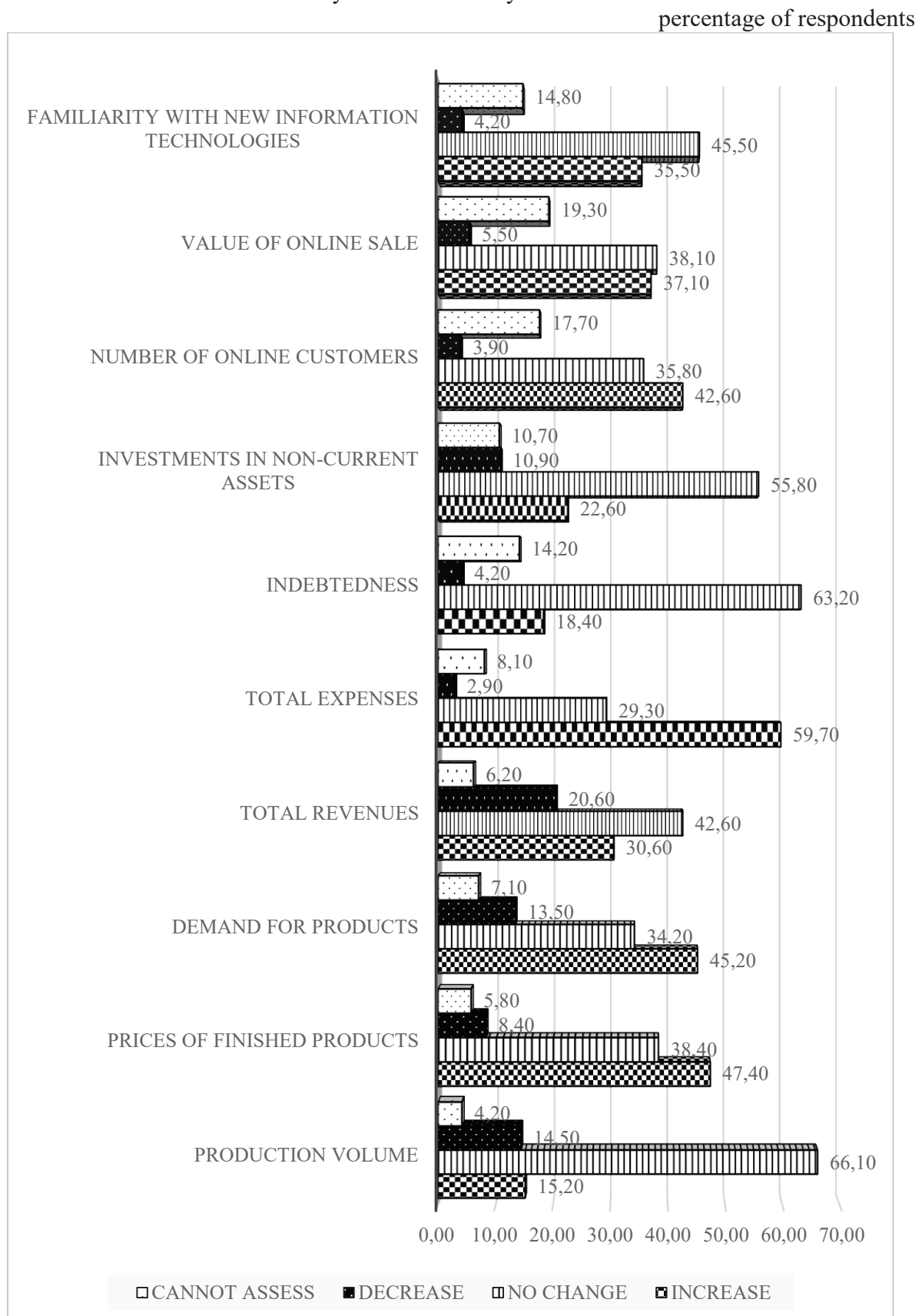
d) Typical structure of sources of finance on family farms

When asked about the most important sources of funding, 86,7% of respondents indicated their own funds. Direct grants are used by 47,1% of the respondents, while 23,9% of the owners surveyed are entitled to funding from EU funds. As both are grants, they are not available to all farmers, but only to those who fulfil certain conditions (age, area under cultivation, cultivation of a certain crop etc.). Family farms that do not meet the conditions for subsidies finance themselves through loans due to a lack of their own funds. Thus, 14,5% of respondents have an open loan with a bank, 4,8% finance themselves in the short term to postpone the due date of payments to their suppliers, while 3,5% of OPGs use leasing to purchase non-current assets.

The majority of family farm owners emphasise financing from their own sources as a basic form of business financing. Since in most cases they are constrained by the availability of these funds, the return of which is threatened by the effects of the COVID-19 pandemic, it is imperative that economic policymakers take steps to facilitate access to sources of finance in the form of "cheap loans". Above all, however, financial literacy must be promoted so that farm owners can correctly assess the quality of the financing options on offer and are aware of both: the potential risks and the possible consequences of choosing a particular option.

The central question of this survey related to the respondents' assessment of the impact of the pandemic on selected business indicators. Their responses are shown in Graph 1.

Figure 1: Assessment of the impact of the pandemic on selected business indicators by owners of family farms



Source: Authors

The collected responses to the survey questions shown in the graph reflect the opinion of family farm owners about the impact of the pandemic COVID -19 on their farm results. On this basis, the following conclusions could be drawn:

- 35.50% of family farm owners said they had become more familiar with new information and communication technologies.
- 42,60% of respondents have increased the number of online customers, which has led to an increase in the value of online sales for 37,10% of them,
- investment in non-current assets remained unchanged for 55,80% of family farms,
- most family farms, 63,20%, managed to maintain the value of their debt at pre-pandemic levels,
- prices of raw materials and other materials needed for agricultural production have increased, as indicated by the increase in expenditure reported by 59,70% of family farm owners,
- 45,2 % of the owners stated that the demand for their products has increased,
- many are unable to increase the volume of production due to limited capacity and/or lack of financial resources, which 47,40% of family farm owners cited as the reason for the increase in prices of finished products,
- the production volume of most family farms, 66,10%, has remained unchanged,

Given the demonstrated importance, as well as the adaptability and sustainability that family farms have shown under the conditions of the pandemic, local agricultural production should be promoted at the national level. Various regulatory measures that could provide the necessary support should be related to maintenance, i.e. preventing labour migration, establishing quality supply chains for all inputs and necessary services, providing financial support through soft loans or even non-repayable grants, organising consultations or free support through training, and providing services and information that would help farmers meet legal and similar requirements.

Of all the significant effects that the COVID-19 pandemic had on the activities of family farms, the most interesting seems to be the positive impact on the use of information technologies and the digitalisation of businesses. Indeed, prior to corona, farmers were not sufficiently aware of the benefits of using these technologies in their businesses (Baruah, 2018). However, according to the assessment of family farm owners, 35% of them believe that they have improved their IT knowledge, which has also led to an increase in the number of online customers (in 42,6% of the farms studied), i.e. an increase of almost 40% in the value of their online sales. For this reason, this aspect of the results was selected and analysed in more detail below.

In addition to the application of descriptive statistics, the data collected on farmers' familiarity with new information technologies was analysed using multivariate statistics - correlation and linear regression analysis. For the purpose, three hypotheses were made:

H1: The increase in prices of agricultural products has a positive influence on farmers' familiarity with new information technologies.

This assumption is based on the fact that the increase in prices of agricultural products could encourage greater use of information technologies in family farms, as the increase in income could arouse farmers' interest in the technology that could enable them to make further progress. In addition, the increase in income could give farmers the opportunity to invest in

modern technologies and tools to increase the efficiency of their production and sales, which will force them to explore in detail specifics and possibilities of IT.

H2: The increased demand for agricultural products has a positive impact on farmers' familiarity with new information technologies.

Increased customer demand for online purchases is expected to lead to increased use of advanced technologies in all areas of family farms' activities, resulting in a reorientation of the entire business and mindset towards digital technologies.

H3: A higher level of education of business owners has a positive influence on the acceptance and use of modern information technologies in their businesses.

The educational structure in Croatian agriculture has recently experienced positive intergenerational changes: The number of family farmers with no or completed primary school is decreasing, while the number of those with completed secondary school and a higher level of education has increased significantly. The expectation is that the education process will ensure at least elementary IT literacy, i.e. that a higher level of education will mean greater familiarity of farmers with new information technologies, which was established as the third tested assumption.

Table 6 shows the results of the multivariate statistical analysis of the processed data from the questionnaires: correlation coefficient (γ) and statistical significance of this coefficient (t-value).

Table 6: Results of the correlation

	γ	t-value
H1	0.19	2.11*
H2	0.16	1.72*
H3	0.54	5.37**

* $p < 0.05$

** $p < 0.001$

Source: Authors

It is evident that there is a statistically significant correlation between the two observed variables in all three hypotheses.

In particular, when analysing the results

H1: $\gamma = 0.19$ implies the existence of a correlation (although relatively small) between the increase in prices of agricultural products and farmers' familiarity with new information technologies, while the t-value of 2.11 indicates the statistical significance of this coefficient. Since the t-value of 2.11 is above the critical value, it can be concluded that the determined correlation coefficient is statistically significant at the 95% level of significance.

H2: It can be concluded that there is a statistically significant relationship between the increased demand for agricultural products and farmers' familiarity with new information technologies, as the determined correlation coefficient $\gamma = 0.16$ is at the significance level $p < 0.05$.

H3: It can be seen that there is a significant correlation between the level of education and the acceptance of information technologies (0.54) and the determined correlation coefficient is significant at the significance level $p < 0.001$.

Nevertheless, it is important to point out at the end that the calculated correlation coefficients do not imply a cause-effect relationship between the variables, but only indicate the fact that there is a statistical relationship between them.

Consequently, the second step of the statistical analysis was to examine a linear regression, i.e. the existence of a statistically significant relationship between farmers' familiarity with information technologies as the dependent variable and the increase in prices of agricultural products, the increase in demand for agricultural products and farmers' level of education as three independent variables. The results of the analysis are presented in Table 7.

Table 7: Results of the linear regression analysis

	Predictor "b"
The increase in prices of agricultural products	0.127*
The increase in demand for agricultural products	0.124*
Farmers' level of education	0.468**
R ²	0.675
F(3,310)	211.846***

* p < 0.05

** p < 0.001

*** p = 0.000

Source: Authors

The calculated coefficients (predictor "b") show how strongly each of these variables contributes to predicting the final outcome. For example, the increase in prices of agricultural products as well as the increase in demand for agricultural products could have a slightly positive effect on farmers' familiarity with information technologies, while the influence of farmers' level of education could be more significant.

The whole model can be considered statistically significant as $p < 0.05$. Three independent variables can explain 67.5% of the variance of the variable farmers' familiarity with new information technologies, which is a relatively good fit of the specified model, considering that R² should be as close to 1 as possible. The F-value represents the ratio between the variability explained by the model and the variability not explained by the model, i.e. the total variability of the dependent variable. In this case, with three degrees of freedom and a sample of 310 observations, the F-value is 211.846, indicating that the model has a very strong influence on the dependent variable.

4. Conclusion

The multidimensional global crisis that emerged as a result of the pandemic COVID -19 has caused many difficulties throughout the economy. The Croatian agricultural sector, especially the part influenced by tourism consumption, has proved to be particularly vulnerable. However, like any crisis, this one has opened the possibility for progress and change. Family farms have the opportunity to take a significant place in local communities, i.e. in the agricultural sector as a whole. The close connection with their surroundings has enabled family farms to influence rural development and make an important social and economic contribution by supplying local agricultural products and maintaining employment. At the national level, the ultimate goal of agriculture is to achieve sustainable and self-sufficient

production, which is a guarantee of security and independence in this segment, and family farms are important resources for achieving this goal.

The COVID-19 pandemic has shifted the entire social life to the digital sphere, and the physically limited movement of people and goods has been overcome by digitalised communication and online shopping. Before the COVID-19 pandemic, farmers were not sufficiently aware of the benefits of using these technologies on their farms. But, thanks to pandemic, a new model of direct interaction between family farmers as producers and customers has emerged based on the development of technology and digitalisation. Numerous groups have been formed on social networks to drive digital communication, digital markets are being developed and a supply chain for agricultural products to the consumer's doorstep has emerged. Many family farm owners have developed their own online shops. The described trends in agriculture that emerged during the pandemic: the introduction of delivery services and e-commerce, the development of online education and the like, will certainly continue to shape business in the future. The willingness of family business owners to adapt and transform their business models through innovation and digital transformation will determine their survival in the market. The past has shown that a large proportion of family businesses are willing and able to respond to the challenges of the crisis by using new digital technologies, especially in the area of sales, and improving their digital skills.

This study attempted to show the impact of COVID -19 on the business performance of family farms. Similar studies can be conducted in the future with a sample formed from other types of organisations within the agricultural sector to highlight the similarities and differences in this industry. The same analysis can be conducted in different countries with different levels of development to compare the impacts and responses of the respective agricultural industries. Finally, this research can be extended to analyse the data obtained using simulation and modelling techniques.

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A scientific paper

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DEVELOPING AN ENTREPRENEURIAL MINDSET AND INTENTION IN THE CLASSROOM USING LEARNER-CENTRED PEDAGOGIES TO STIMULATE COMMUNICATION, COLLABORATION, CREATIVITY, AND CRITICAL THINKING: A CASE STUDY APPROACH

ABSTRACT

This paper explores the effects of the delivery of teaching content through flipped classroom pedagogical methods on the entrepreneurial mindset and intention of students across taught entrepreneurship modules on undergraduate business degrees. It measures the effects of entrepreneurship education through the four C's skillset: communication, collaboration, critical thinking and creativity (European Commission, 2021) and on the entrepreneurial mindset and intention. The flipped classroom methods used included group discussions, quizzes, formative feedback, small group activities, guest speakers, video clips with the intent of fostering the four C's skillset and entrepreneurial mindset and intent. A sample of 92 students from two different cohorts of students studying entrepreneurship modules as part of their business-related degrees in Dundalk Institute of Technology (DKIT) within one semester were chosen as part of the study. The effects of the pedagogical methods and content delivered within the modules were measured using the HEInnovate Entrepreneurial Potential Innovation Competences (EPIC) assessment tool to measure the effectiveness of entrepreneurship courses before and after delivery alongside a further survey constructed to specifically measure the impact of the flipped classroom methods on the four C's. The results from both cohorts show that the content, entrepreneurial teaching style and methods used in the classroom had an increased positive effect on students' entrepreneurial mindset and intentions as well as an increased development of their core four C's skillset. Although limited to a case study, this study shows that the classroom is a micro-training environment which has the potential to prepare graduates in adding value to the global economy as an entrepreneur or intrapreneur and in acquiring the aptitude to address pressing global issues. This study was limited to a case study approach of two cohorts within DKIT, however further study of other cohorts across different disciplines is an area for future research.

Key words: *Flipped classroom methods; EPIC; entrepreneurial mindset; entrepreneurial Intention.*

1. Introduction

There is a growing demand for Entrepreneurial education due to the uncertainty of the job markets, the increase of multiple career shifts provides a greater possibility of self-employment (Frank et al., 2005). Friedman (2013) highlights that past generations focused on finding a job whilst the future generations focus on inventing a job. The European Commission (2021:6) is increasingly aware that “*Europe needs more people who can tackle the challenges we face – people with the right knowledge, skills and attitudes to turn ideas into action for the betterment of our society. We need them to master the digital transition, the climate crisis....using entrepreneurship education to build a green, digital and resilient Europe*’ and suggest that Entrepreneurship education is required for solving these global problems using the four Cs: communication, collaboration, creativity, and critical thinking. Entrepreneurship education means developing a culture which is through, for and about entrepreneurship. The Flipped classroom model increases learning and academic performance as well as providing an opportunity to foster practical knowledge and skills on communication, collaboration, critical thinking, and problem solving (Price and Walker, 2021; Shih & Tsai, 2020 cited in Senali et al, 2022).

Entrepreneurship can be taught and nurtured supported by the *Social Cognitive Theory* (SCT) (Bandura, 1986) premise which states that learning occurs in a social context with a dynamic and reciprocal interaction of the individual, environment, and behaviour (Biraglia & Kadile, 2016). Studies on entrepreneurship education have found that it has a positive impact on entrepreneurial skills (Sánchez 2013) and on entrepreneurial Intention (Martin et al, 2022; Gielnik et al, 2015 cited Fiore et al, 2019).

They require active, learner-centered pedagogies and learning activities that use practical learning opportunities from the real world (European commission (2011 cited Gautam and Singh, 2015). Project Based Learning (PBL) is an approach used for active learning and is viewed as ‘constructive, self-directed, collaborative and contextual learning’ (Dolmans et al., 2005 cited Fassenbender, 2022:3) to promote competencies in problem-solving and other transferable skills. In addition to PBL, the Flipped classroom model increases learning and academic performance as well as providing an opportunity to foster practical knowledge and skills on communication, collaboration, critical thinking, and problem solving (Price and Walker, 2021; Shih & Tsai, 2020 cited in Senali et al, 2022). Using flipped classroom allows class time to be used for active learning activities, such as, group discussions, quizzes, feedback, small group activities which foster problem-solving, teamwork and creativity (Hobgood et al., 2002 and Robles, 2012 cited Senali et al, 2022) as well as games and video clips; interactive chat rooms; MS Teams guest lectures. Class presentations also positively influence students’ time management, leadership, speaking, interpersonal skills, confidence and critical thinking skills (Abushammala, 2019; Koponen, 2019 cited in Senali et al, 2022; Bolkan 2019).

With the growing importance of entrepreneurship education and the need for students to develop the 4 C’s skills in bringing innovation to our global economy as well as providing solutions to global issues, this research is warranted into how effective teaching can nurture the 4C’s of our future generation in making a sustainable and positive impact. Therefore, a case study approach was designed to explore the effects using real-life project based learning assessment and the flipped classroom methods within the classroom to include: active learning activities, such as, group discussions, quizzes, feedback, small group activities, guest speakers, video clips which foster problem-solving, teamwork and creativity (Hobgood et al., 2002 and Robles, 2012 cited in Senali et al, 2022).

2. Methodology

2.1. The Research Design

The research design took a case study approach focusing on Dundalk Institute of Technology and with two different students studying entrepreneurship modules as part of their business-related degrees. The sample consisted of two cohorts of students. The first cohort were 70 students which comprised of a combination of students studying a B. B in Business Studies (Hons) Year 3 and Higher Diploma in Business students in Dundalk Institute of Technology. The module they were undertaking was 'Innovation and Entrepreneurship'. Whilst the other cohort of 32 students were studying a B.B in Business & Management Year 3 and the module they undertook was 'Enterprise Development project'. Two different lecturers delivered each module. Both modules were delivered across 3 hours per week across the semester. The content and pedagogical methods were deployed in both classroom settings included classroom discussions using Padlet, Multimeter quiz, classroom group discussions, formative feedback, guest speakers.

2.2. Sampling Technique

A purposive sampling technique was adopted to include a set criteria for both cohorts of students who were involved. This criterion included: students studying entrepreneurship modules, at the same academic degree level and year group within the same Department of Business Studies and Humanities. This criterion was set to allow for comparisons.

2.3. The Classroom approach of both cohorts

The outline of the approach taken in the classroom in relation to content delivered, assessment and methods used were as follows for cohort 1 studying B. Business Studies (Hons) Year 3 and Higher Diploma in Business students and cohort 2 B.B in Business & Management Year 3 follows.

2.3.1. Student cohort number 1

The students were placed in groups and given a Continuous Assessment (CA) where each group had different tasks. Some groups worked independently, and some worked in parallel. In some cases, the group had to research entrepreneurial traits and entrepreneurial impact. One group of students identified 5 local entrepreneurs and a different group interviewed them asking them a series of questions around the traits of the entrepreneur. Each interview lasted up to 40 minutes and from this they created a business podcast. The podcast was called 'Behind the Brains' and was afterwards made accessible on the Virtual Learning Environment (VLE). The students organized a student led event to launch the podcast in DKIT, with invited guests.

The methods used to foster problem-solving, teamwork and creativity reflected the Flipped classroom approach so hence incorporated group discussions, quizzes, feedback, and small group activities. During face-to-face class time, these methodologies were used by the lecturer to engage and communicate with each different group. In class electronic quizzes were implemented using Mentimeter and Padlet. These were new methodologies for both the lecturer and the students and the students engaged well with both, with the results of both methods stimulating conversation. Students in the Padlet were asked about 'The skills I developed by doing this CA' and their responses include 'resilience', 'Working as a group, getting out of comfort zone, patience, planning & scheduling'. Critical Thinking and Communication skills

were mentioned several times. During class time, regular updates and feedback was given by and to the students on the progress of each element of the task and consequently group discussions arose.

2.3.2. Student cohort number 2

The students were provided with a continuous assessment as a group assessment. It consisted of three parts. The first part required students in groups of a maximum of 5 people to brainstorm three potential business ideas, identify one business idea they wish to pursue and create a 2-minute video to showcase the viability of this idea. The idea was to encapsulate the industry, product/market feasibility and financial feasibility. The second part required groups of students to write up a comprehensive report using secondary and primary research of the business idea again focusing on detail concerning the industry, product/market feasibility and financial feasibility. The final part of assessment required students to engage in a 'Rocket Pitch' presentation in presenting their business venture to a panel of academics and business practitioners.

The content of the lecture prepared students with theory, research and practice regarding the entrepreneurial mindset and skill-set, the entrepreneurial process, the problem/solution viability, the industry analysis, the market analysis, the financial analysis. This was supported by how to find credible secondary sources, how to conduct primary research effectively, how to present video content, how to conduct effective desk research on finance sources, costings, competition and local/national markets. The methods used within the classroom in delivering the content consisted of Padlet to discuss business ideas as a class with written and verbal feedback from peers and lecturer, Mentimeter quiz to verify the content of the proposed video, group discussions regarding the application of analytic/theoretical marketing models with formative feedback from lecturer, video clips illustrating business models, case studies and Dragon Den effective and ineffective entrepreneurial pitches and guest lecture of an entrepreneur's experience and feedback on each group's business idea.

2.4. Measurement

A customized survey was designed to assess the effects of the content, lecturer entrepreneurial style and methods used in the classroom on the student's entrepreneurial mindset and intention before and after the delivery of both modules. The survey was customized using the validated HEInnovate 'The Entrepreneurial Potential and Innovation Competences' (EPIC) course assessment which was designed to help educators measure the effectiveness of their entrepreneurship courses (HEInnovate, 2023). The survey consists of a series of statements under five main themes including: Entrepreneurial Competences, Entrepreneurial Intentions and Attitudes, Entrepreneurial Mindset and Enterprising Behaviours, Entrepreneurial Scenarios and Entrepreneurial Effects. Students respond to each statement on a 10-point Likert scale of 1 being low and 10 being high, 'before this class and 'after this class'.

The first theme of Entrepreneurial Competences consists of a maximum of 15 statements attached to three main competence areas including: Ideas and Opportunities, Resources and Taking Action. The second of Entrepreneurial Intentions and Attitudes consists of a maximum of 4 statements and focuses on venture creation. The statements assess the student's intention to pursue a self-employed career, their entrepreneurial aspirations, their attitude towards entrepreneurship and their expected outcomes. The third theme of Entrepreneurial Mindset and Enterprising Behaviors assesses entrepreneurial judgment and independence. There are a total of 12 statements within this theme and it assesses students' intention to pursue a career as an intrapreneur, confidence in making difficult decisions and their future intentions. In these three

themes, the students were asked to rate their scores using Before and After. The fourth theme of Entrepreneurial scenarios asks students to rank their preferred strategy that can be applied to different scenarios. The final theme of Education Effects consists of a total of 5 statements and measures intrinsic motivation, educational engagement, entrepreneurial teachers and experiential teaching methods over the course of the duration that the classroom was flipped. Students are required to solely look at the impact of educational effects after undertaking the module in Entrepreneurship, unlike the previous three themes, which looked for a score of Before and After.

In composing the customized EPIC survey, the four themes selected for the purpose of this study were: Entrepreneurial Competences, Entrepreneurial Intentions and Attitudes, Entrepreneurial Mindset and Enterprising Behaviours and Entrepreneurial Effects. The themed option of Entrepreneurial scenarios was omitted based as the research question was already measured within the four chosen themes and the survey was taking an average of 25 minutes to complete. Within the chosen four themes, the EPIC assessment tool allows the selection of statements at three 'focus' levels. The higher the focus level, the greater the number of statements and depth of questioning, therefore level 3 was chosen within all four themes.

In addition to the EPIC survey as a measurement tool of the entrepreneurial mindset, intentions and educational effects of the methods and lecturer delivery, a series of 5-point Likert-scale questions of Strongly Agree to Strongly Disagree were devised to find out the impact each individual flipped classroom methods on improving the four C's skillset: communication, collaboration, creativity, and critical thinking.

2.5. Deployment of survey

In line with Ethical approval standards, prior to the deployment of the survey, all students were provided with a handout outlining the purpose of the study, the impact of the study, how their participation would contribute, the anonymity and confidentiality of the survey, the consequences of participating, how the data would be stored, used and destroyed. Both cohorts of students were asked to read the document regarding the purpose of the study and upon consenting to participate in the study, complete a participatory consent form prior to completing the survey.

At the end of the assessment, both cohorts of students were provided with a link to the survey in order to complete it. This link was posted onto the Virtual Learning Environment so the student could access the survey. Follow-up emails were sent one week after distribution and verbal reminders given in the classroom by both lecturers to increase response rates. Final response rates for both cohorts were 64% based on the total number of students in each class. A comparison of the results of both cohorts of students will be given in the Results section and the overall results of both surveys will be discussed.

3. Results

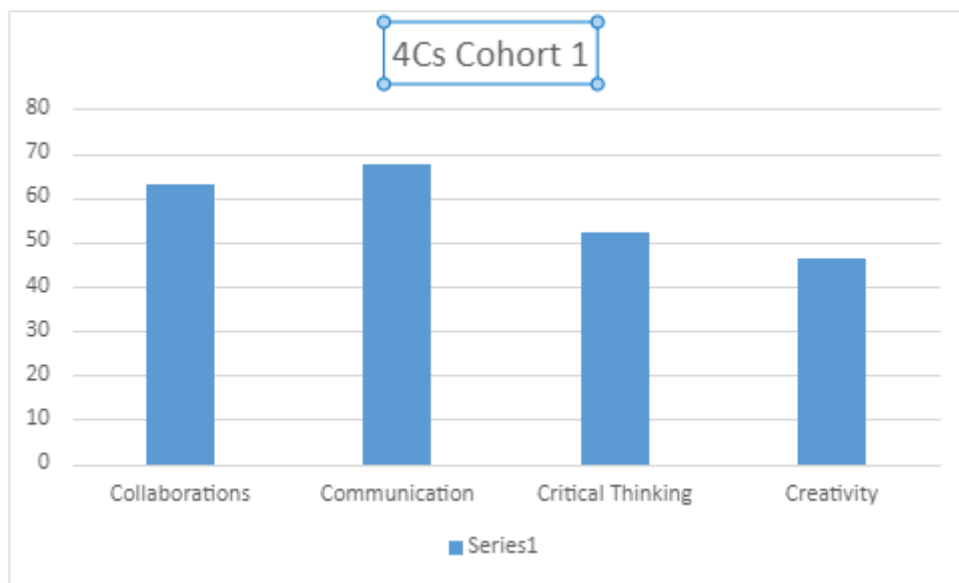
This section highlights the results of the responses from the survey derived from student cohort 1 and 2. The results are divided into cohort 1 and 2 and into the responses to both the EPIC survey and the survey designed to assess the flipped classroom methods effectiveness in developing the four C's skillset. A summary of comparison of both cohorts is drawn.

3.1. Results from Cohort 1

3.1.1. Flipped Classroom Results

The first survey featured the Impact of the Flipped Classroom and was undertaken with Student cohort 1, which comprised 70 students of which 54 students responded giving a 77% response rate. The method of analysis involved separating the responses for 'Not Improved and Somewhat Improved' Vs 'Improved and Significantly Improved' for each cohort of students. The survey measured the impact of the Flipped Classroom on the 4Cs Communication, Collaboration, Creativity, and Critical thinking. Of the 4C's, both Communication and Collaboration had the greatest impact according to the students' responses. Creativity did not appear to be impacted as much by the Flipped classroom experience. See Figure 1.

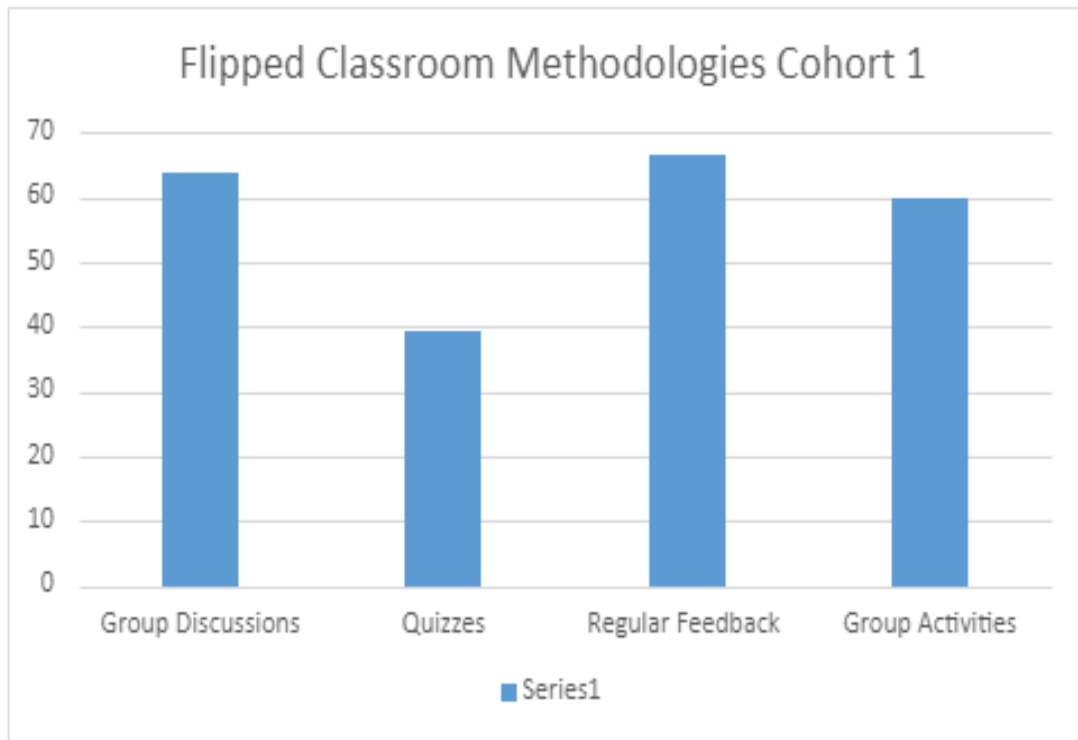
Figure 1: Collation of responses from Student Cohort 1 regarding the 4Cs



Source: Authors

The survey also identified which of the 4 methods used in the Flipped Classroom was the most effective. The 4 methods used were i.e. Group Discussion, Quizzes, Regular Feedback and Group Activities. As can be seen in Figure 2 the most effective methods according to the students' responses were Group Discussion, and Regular Feedback with Quizzes being the least effective.

Figure 2: Collation of responses from Student Cohort 1 regarding the Effectiveness of the various Flipped Class Methodologies

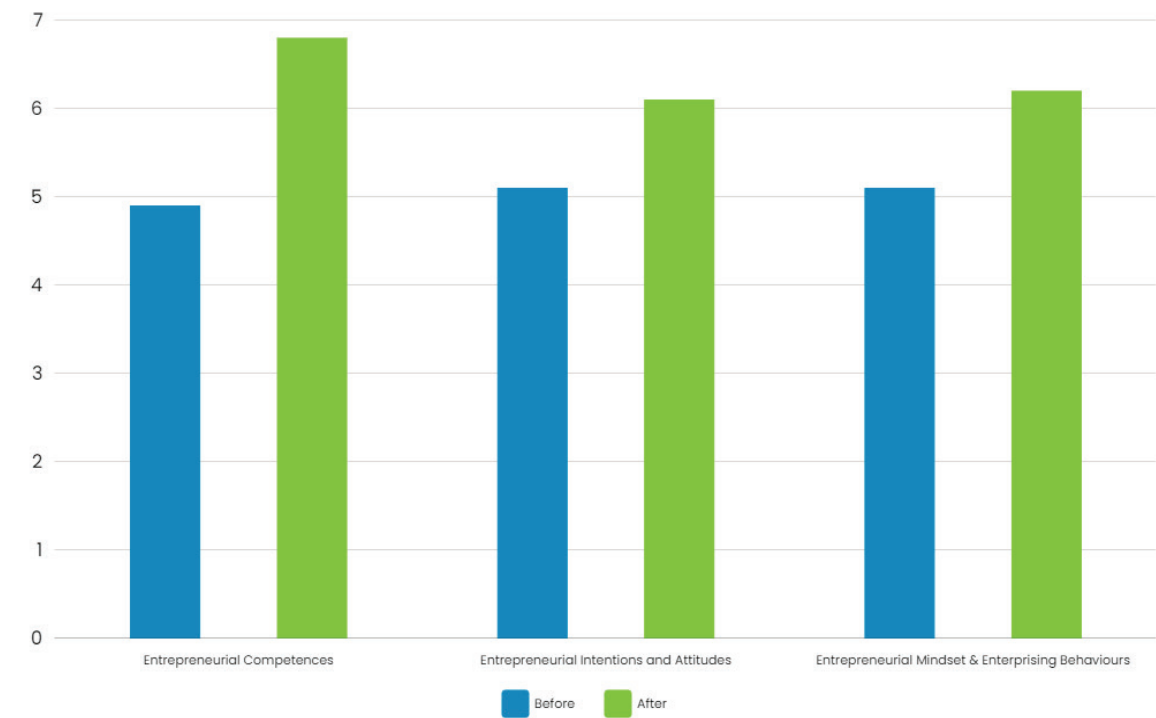


Source: Authors

3.1.2. EPIC survey Results

The EPIC survey consisted of 4 parts, Entrepreneurial Competences, Entrepreneurial Intentions and Attitudes, Entrepreneurial Mindset and Enterprising Behaviours. As mentioned in section 2.4, these results are derived from a Before and After response and are graphed below. The class group comprised 70 students of which 43 students responded giving a 61% response rate. A significant increase in the Before and After results from Student Cohort no 1 can be seen in the following graph which displays all three themes as per the EPIC standard presentation of results.

Figure 3: Student Cohort no 1 EPIC summary

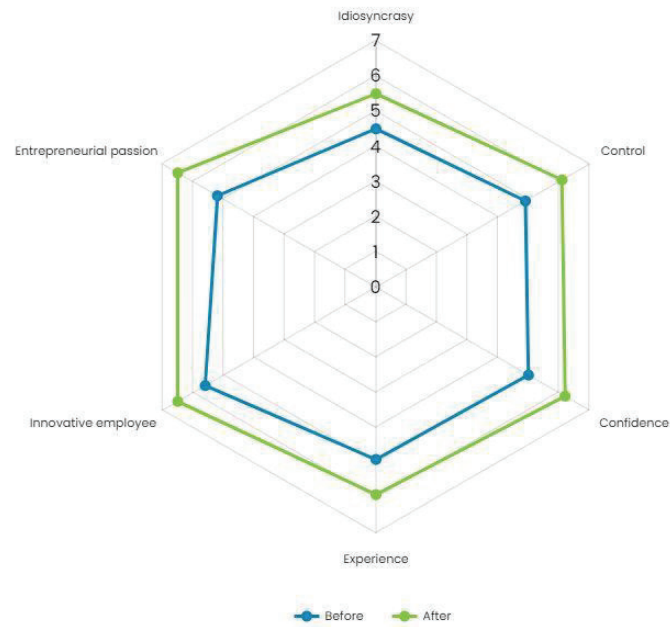


Source: Authors

The area of most interest to the researchers was Entrepreneurial Mindset and Enterprising Behaviours and the details of this dimension are graphed below.

There was an increase in several key areas, such as, Idiosyncrasy, Control, Confidence, Experience, Innovative Employee and Entrepreneurial Passion.

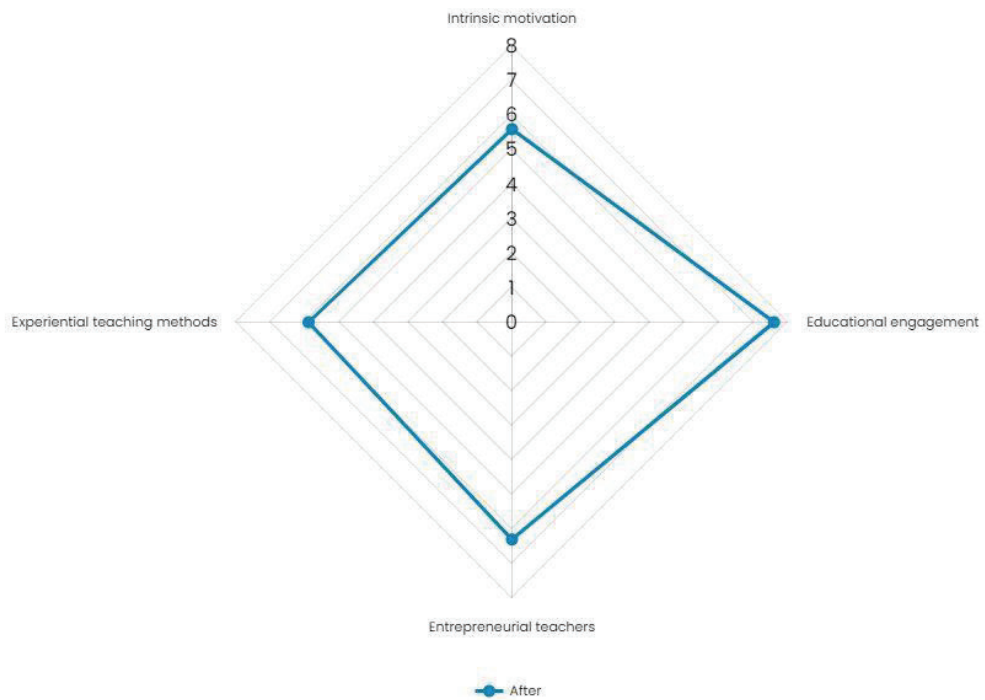
Figure 4: Student Cohort no 1 EPIC Detailed Summary of Entrepreneurial Mindset and Enterprising Behaviours



Source: Authors

Finally, the results from Educational Effect are below. These results are automatically derived from the responses given by the students. The students scored their experience and perception of Educational Effect as positive as seen below.

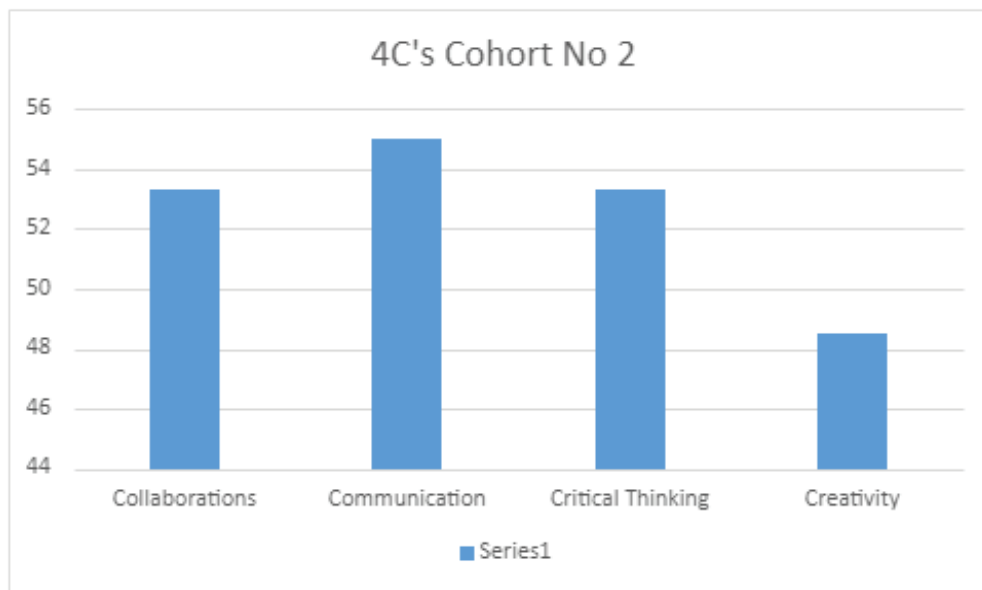
Figure 5: Student Cohort no 1 EPIC Educational effects



Source: Authors

3.2. Results from the Cohort 2

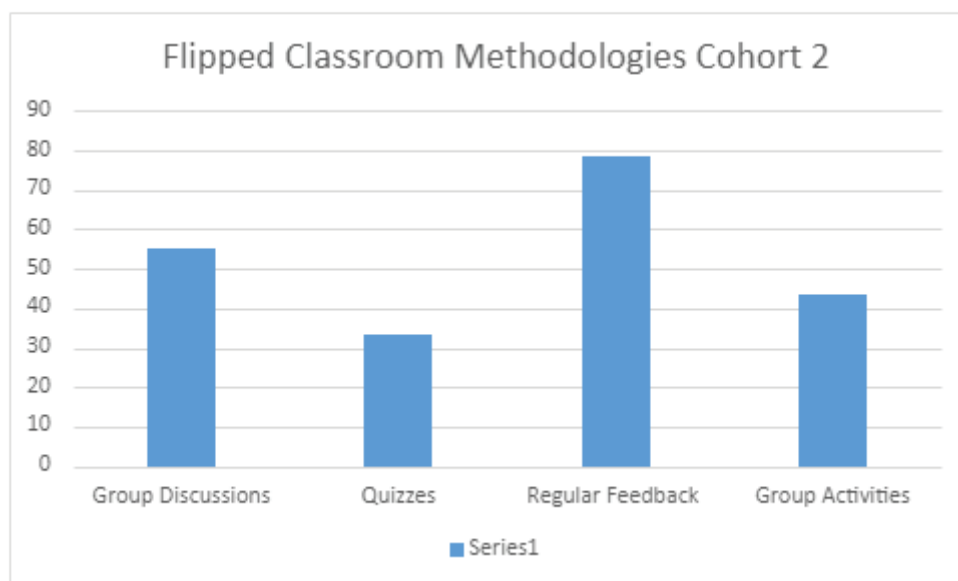
The first survey featured the Impact of the Flipped Classroom and was undertaken with Student cohort 2, which comprised of 32 students of which 15 students responded giving a 46% response rate. As above, the method of analysis involved separating the responses for ‘Not Improved and Somewhat Improved’ Vs ‘Improved and Significantly Improved’ for each cohort of students. These responses were collated against the 4Cs Communication, Collaboration, Creativity, and Critical thinking, resulting in Figure 6. Of the 4C’s, Communication, Collaboration and Critical thinking had the greatest impact according to the students’ responses. Similar to Cohort 1 results. Creativity did not appear to be impacted as much by the Flipped classroom experience. See Figure 2.

Figure 6: Collation of responses from Student Cohort 2 regarding the 4Cs

Source: Authors

The survey also identified which of the 4 methods used in the Flipped Classroom was the most effective.

Again, the same 4 methods used were used to include Group Discussion, Quizzes, Regular Feedback and Group Activities. As can be seen in Figure 7, the most effective methods according to the students' responses were Group Discussion, and Regular Feedback followed by Group Activities with Quizzes being the least effective.

Figure 7: Collation of responses from Student Cohort 2 regarding the Effectiveness of the various Flipped Class Methodologies

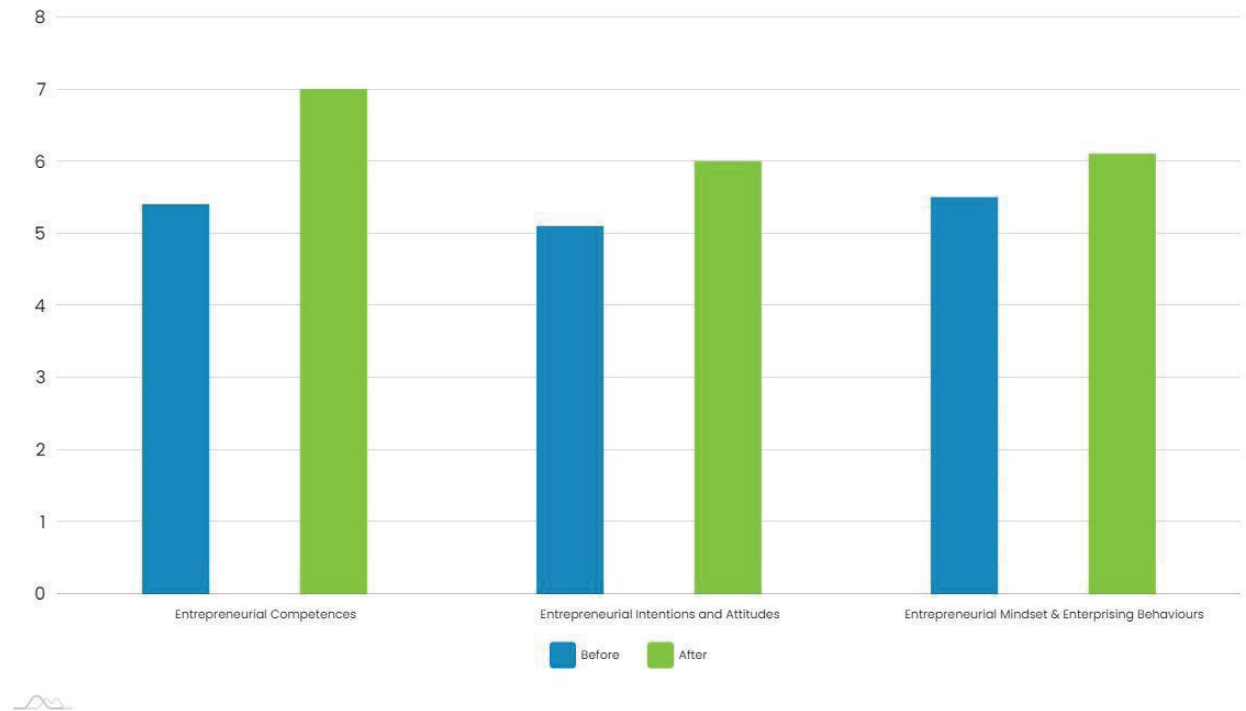
Source: Authors

When it came to the EPIC survey, the class group for Cohort 2 comprised 32 students of which 8 students responded giving a 25% response rate. This cohort had similar results and

improvements across the key areas of Entrepreneurial Competences, Entrepreneurial Intentions and Attitudes, Entrepreneurial Mindset and Enterprising Behaviours and finally Educational Effect. See Figure 8.

A significant increase in the Before and After results from Student Cohort no 1 can be seen in the following graph specifically for Enterprise Competences. There was also a smaller but significant increase for Entrepreneurial Intentions and Attitudes, Entrepreneurial Mindset and Enterprising Behaviours.

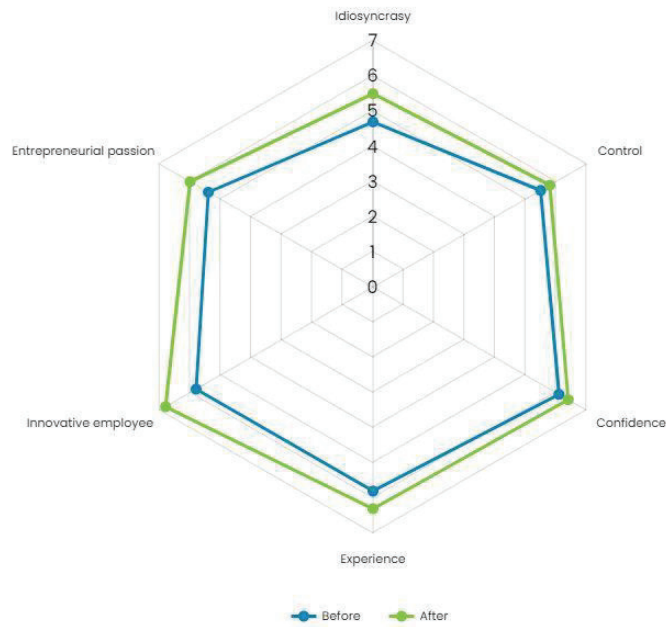
Figure 8: Student Cohort no 2 EPIC summary



Source: Authors

Again, as shown in Figure 9, in relation to Educational Effects, there was an increase in a number of key areas such as Idiosyncrasy, Control, Confidence, Experience, Innovative Employee and Entrepreneurial Passion.

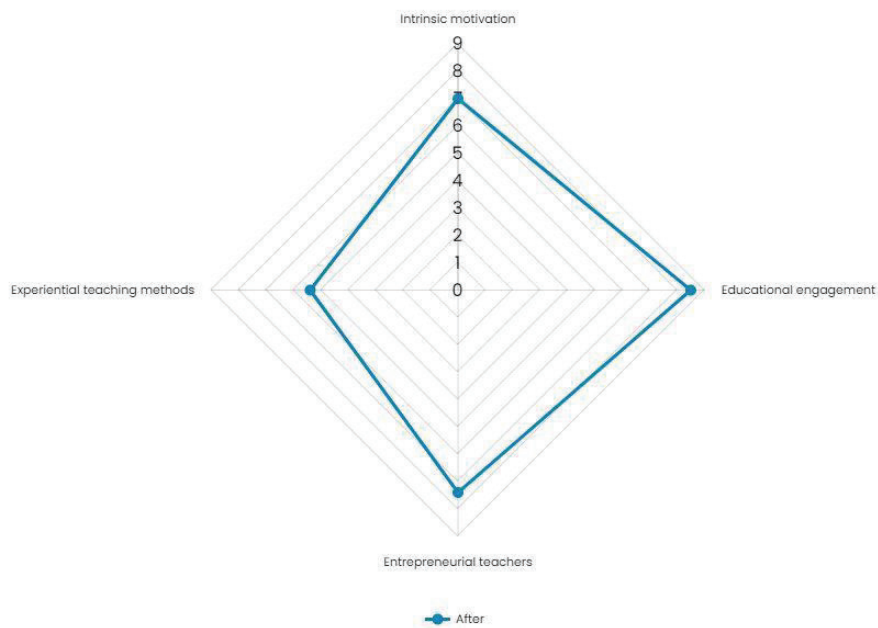
Figure 9: Student Cohort no 2 EPIC Detailed Summary of Entrepreneurial Mindset and Enterprising Behaviours



Source: Authors

Finally, the results from Educational Effect are below. These results are automatically derived from the responses given by the students. The students scored their experience and perception of Educational Effect as positive as seen below.

Figure 10: Student Cohort no 2 EPIC Educational effects



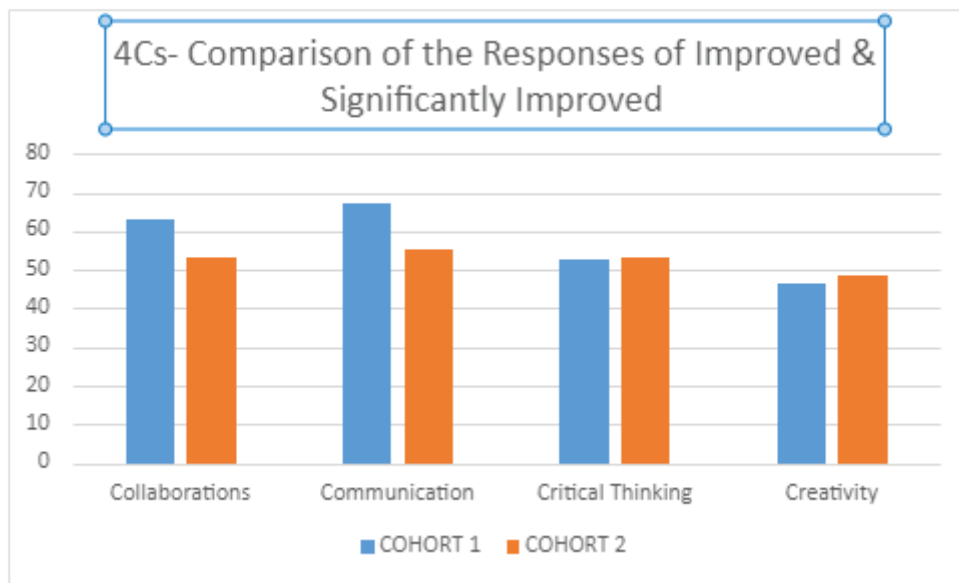
Source: Authors

4. Discussion

Regarding the results from the Flipped classroom methods survey, the researchers were interested in the areas that students felt had either ‘Improved’ or ‘Significantly Improved’, hence the method of analysis involved separating the responses for ‘Not Improved and Somewhat Improved’ Vs ‘Improved and Significantly Improved’ for each cohort of students. As previously stated, the Flipped classroom model increases learning and academic performance as well as providing an opportunity to foster practical knowledge and skills on communication, collaboration, critical thinking, and creativity (Price and Walker, 2021; Shih & Tsai, 2020; Hobgood et al., 2002 and Robles et al 2012, cited in Senali et al, 2022). , This is evidenced in the results presented.

Interestingly Student Cohort 1 identified Collaborations and Communication as the two areas which improved the most i.e gave them the highest score whilst Student Cohort 2 chose three strong areas as Collaborations, Communication and Critical Thinking. Both sets of students independently agreed that their Creativity did not improve as part of the Flipped Classroom, See Figure 11.

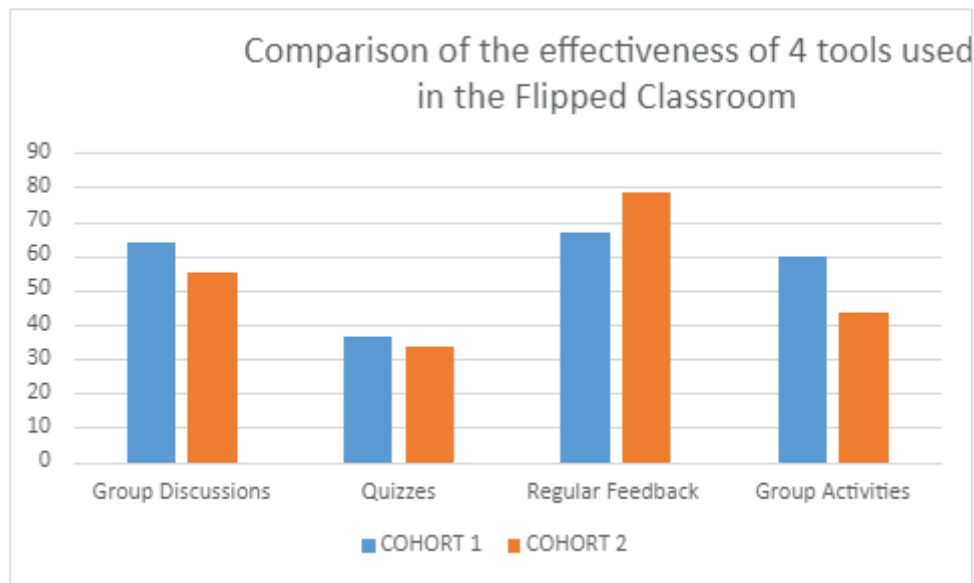
Figure 11: 4 C’s Comparison of the 2 different Cohorts of Students’ Responses of Improved & Significantly Improved



Source: Authors

The flipped classroom was a key aspect of this research. The flipped classroom allows class time to be used for active learning activities, such as, group discussions, quizzes, feedback, small group activities which foster problem-solving, teamwork and creativity (Hobgood et al., 2002 and Robles, 2012 cited Senali et al, 2022) When it came to how effective each of these suggested methods were, the answers were clear and were similar across both cohorts. The least effective method was Quizzes whilst the most effective was Regular Feedback. See Figure 12.

Figure 12: 4 C's Comparison of the effectiveness of the 4 Tools used in the Flipped Classroom



Source: Authors

From the results from the EPIC survey, it is apparent that the three dimensions; Entrepreneurial Competences, Entrepreneurial Intentions and Attitudes and finally Entrepreneurial Mindset and Enterprising Behaviours, all increased over the course of the duration that the classroom was flipped. This was evidenced in the results from Figure 3 and Figure 8 for each cohort of students. It is also apparent from the results from the EPIC survey, when the researchers looked at the detailed results from the Entrepreneurial Mindset and Enterprising Behaviours domain, that again there was an increase in a number of key areas such as Idiosyncrasy, Control, Confidence, Experience, Innovative Employee and Entrepreneurial Passion. This is evident from both sets of students' responses in Figure 4 and Figure 9.

Finally, it is shown that in the results from Figure 5 and Figure 10, that for both cohorts of students, there was a high level of educational effect which comprises of measures of intrinsic motivation, educational engagement, entrepreneurial teachers and experiential teaching methods, over the course of the duration that the classroom was flipped. This is particularly satisfying for both the researchers.

5. Limitations and recommendations

This study was based on one case study within Dundalk Institute of Technology and therefore the findings are specific to the two cohorts studied. However, to increase generalizability of the findings, this study could be replicated across degree courses and faculties within the Institute itself as well as across institutes in Ireland and again in other countries.

The timing of the Continuous Assessment was early in the semester. As the Flipped Classroom was a new approach and concept, there were learnings around the timing, that could be taken into account for the future.

The EPIC survey took considerably longer for the students to complete e.g. 4 minutes for the Google Forms Vs 25 minutes for EPIC so consequently the response rate was significantly lower for EPIC (an average of 43% response rate) in comparison to the Google Forms (an average of 66% response rate). For future surveys the authors would reconsider the length of

time that the surveys take to maximize participation. The response rate was low for the EPIC from the smaller cohort of 32 students with a 25% response rate so it is difficult to make significant conclusions from that particular cohort.

In using the HEInnovate EPIC survey as a validated measure, it would be of interest to compare and benchmark findings with other educational institutions globally and compare flipped classroom methods, lecture style and content in making marked improvements. This provides an opportunity to share best practice across educational institutions and to pool data using the same validated EPIC measure.

6. Conclusions

It is evident from this study that flipped classroom methods, the entrepreneurial style of the lecture and the content delivered has a positive improvement and impact on students' entrepreneurial mindset and intention, as well as development of the critical skill set highlighted by the European Commission (2021) critical thinking, communication, collaboration, and creativity.

Although two completely separate cohorts of students were utilized in the research and both cohorts were studying different modules, albeit covering entrepreneurship, the survey results also independently demonstrated that quizzes are the least effective method of teaching and that the neither set of students felt that the flipped classroom increased their ability to be more creative. Consequently, the lecturers would in the future aim to include different methodologies and tasks which stimulate creativity for example, live problem solving scenarios, practical creative in-class tasks and interactive problem solving assessments.

The implication of this study is that a positive and significant impact can be made on graduates in preparing them to seize opportunities as an entrepreneur and an intrapreneur, as well as making informed decisions in solving complex issues for businesses and society globally. This study demonstrates how the education sector adds value to the knowledge and skillset of the workforce.

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A scientific paper

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ASSESSING THE ENTREPRENEURIAL CHARACTERISTICS OF UNIVERSITY

ABSTRACT

Universities play an important role in the development of society and the environment in which they operate. To respond to the demands of society, universities must change.

An entrepreneurial university is a responsible and innovative university that works in accordance with the needs of its environment and contributes to solving problems and developing that environment. To assess their entrepreneurial and innovative capacity and define areas for improvement, the European Union and the OECD have developed the HEInnovate tool, a tool to explore the innovative and entrepreneurial potential of universities. HEInnovate is based on eight pillars of the innovative and entrepreneurial university: Leadership and Governance, Organisational capacity, Entrepreneurial teaching and learning, Preparing and supporting entrepreneurs, Digital transformation and capability, the knowledge exchange and collaboration, the internationalized institution, Measuring impact. More and more higher education institutions around the world are realising that these changes are not just a short-lived trend, but are necessary for competitiveness and survival. The importance of the university's shift towards more accountability and entrepreneurship is also highlighted in the ACEEU accreditation, which recognises the entrepreneurial nature of the university and its third mission - active relations and engagement with society.

The goal of this paper is to explain what an entrepreneurial university is and why it is important to become one, and to explain the process of using the HEInnovate tool and ACEEU accreditation to lead the change at the university transformation towards an entrepreneurial university.

Key words: *entrepreneurial university, innovative university, HEInnovate, entrepreneurial characteristics, ACEEU accreditation.*

1. Introduction

In today's world, everything has changed, from knowledge to technology to globalisation; natural resources, including energy, are becoming increasingly scarce; global warming is a serious threat; and the complexity of the world we live in is increasing. It can be very challenging to keep up with and respond appropriately to change in a rapidly changing society where ways of living and thinking are also changing. At the same time, no one can afford not to take advantage of the abundance of opportunities presented by the changes in the environment because they will lose the chance to live in a better world. However, this requires the knowledge and skills needed to recognise opportunities and turn them into better products, processes, and organisations. (Oberman Peterka, 2008).

In society's response to the issues raised by globalisation, higher education is critical. It serves as the foundation for the growth of a knowledge-based economy (Neave, 2002); it provides research and analysis to deal with the challenges and opportunities of the future; and it serves as an important link between the national and global environments (Klofsten et. al., 2019). Therefore, one of the basic requirements of any modern democratic society is the presence of high-quality and sustainable higher education institutions. Without a sufficient higher education system that creates a critical mass of educated and qualified individuals, no nation can ensure sustainable development and progress. The inadequate preparation of universities (as the main representatives of higher education) to meet the needs of a competitive global society in transitional and developing countries is highlighted as one of the main reasons for marginalisation and lagging behind in the global economy (Oberman Peterka, 2008, Etzkowitz, 2013, Klofsten et. al., 2019).

It seems that universities do not (or do not want to) grasp how radical the changes in society are, and many believe that the future will only be a better or worse version of today's society. What was once considered basic knowledge can quickly become completely useless and inadequate for meeting the day-to-day challenges of living in a globally interconnected world (O'Hara, 2007). If universities do not respond to the changes and demands of the environment, they run the risk of repeating the historical mistake of some European universities, which, because they ignored the environment in which they operated, became completely irrelevant and nearly extinct (Altbach, 2004). Numerous authors (Gibbons, 1998; Subotzky, 1999; Clark, 1998; Goddard, 1997; Delanty, 2001; Gibbons et al., 2004; Vlasceanu, 2005; O'Hara, 2007; Oberman Peterka & Salihovic, 2010; Audretsch & Belitski, 2021) emphasise the need to change the university so that it can respond to the demands of contemporary society.

Numerous global organisations, such as the World Bank, the World Trade Organisation (WTO), the European Union, the OECD, UN and others, are paying increasing attention to education and its importance for economic development. Numerous conferences, round tables, debates, etc. are devoted to this topic. They all emphasise the role played by tertiary education and the university as its main representative in the development of society. They also emphasise the need for reform of higher education and its adaptation to the new environmental conditions, as well as the need for flexibility and readiness to respond to the constant and rapid changes brought about by globalisation, and express their dissatisfaction with the provision of higher education. In many countries, governments are promoting the creation of closer links between higher education and business to narrow the gap between higher education and the needs and demands of business. The role of the university has changed significantly over time, largely due to changes and pressures from factors in the external environment (Audretsch & Belitski, 2022). In this process of change, the basic vision should be the need to create a dynamic and responsive higher education institution, which prioritises innovation, entrepreneurship, and competitiveness (Maassen, et al., 2012). Back in 2001, Clark called the new, transformed university an *entrepreneurial university*, by which he means a modern university, which is able to adapt, under its own conditions, to a complex and uncertain environment. There is no universal recipe according to which a university should be reorganised and transformed in order to become "entrepreneurial". Each university "comes to grips" with the changes and demands of the environment in its own specific way that best suits its size, history, structure, and way of operating (Oberman Peterka, 2008.).

The paper is structured in four chapters. After the introductory chapter, the second chapter provides an overview of literature related to the concept of entrepreneurial university and its characteristics; the third chapter describes the available tools, which help universities in the

process of change towards entrepreneurial university, and in the last chapter compares them with regard to scope, criteria, etc.

2. Entrepreneurial university – what is it and why do we need it?

A result of the university's internal growth and external influences linked to the expanding significance of knowledge in society and knowledge-based innovations, entrepreneurial universities have emerged (Etzkowitz, 2013; Hannon, 2013; Klofsten et al., 2019). The university adopts an entrepreneurial mindset in order to meet the requirements of its surroundings, to support local and national economic growth, as well as to enhance its own financial situation and the status of its staff (Oberman Peterka, 2008).

Entrepreneurial university also emerges as a result of the desire to connect theory and practice and the need to transform knowledge into value for society (Volles, Gomes & Parisotto, 2017, as cited in de Moura Ribeiro et al., 2022). It represents an institution that ensures the development of knowledge, innovation, innovative capital, entrepreneurial skills and abilities (Salume et al., 2021, as cited in Moura Ribeiro et al., 2022).

The transformation of universities into centers for knowledge creation and transfer in the framework of a knowledge-based economy is attracting the attention of researchers more and more (Audretsch 2014; Etzkowitz, 2004, Guerrero et al., 2016, as cited in Arroyabe et al., 2022). Entrepreneurial university represents a platform for scientific research aimed at a deeper understanding of social, economic and environmental challenges, which consequently leads to innovation and creation of new market opportunities (Kirby, 2006; Kirby, Guerrero & Urbano, 2011, as cited in Audretsch & Belitski (2022). Closely related to this is the third mission of the university, which refers to the process of knowledge transfer as a key force for the promotion and strengthening of innovations with the aim of social and economic development (Audretsch, Keilbach & Lehmann, 2006; Centobelli, Cerchione & Esposito, 2019, as cited in Arroyabe et al., 2022).

For Röpke (1998), an entrepreneurial university means: a university that becomes entrepreneurial as an organisation; a university in which all its members – teachers, students, employees become entrepreneurial in some way; a university that, through interaction with the environment, develops an appropriate entrepreneurial pattern. Entrepreneurial university is an institution that provides the basis for regional and national growth and development through close and intensive cooperation with its environment (Blenker, 2006; Etzkowitz, 2013; Hannon, 2013; Klofsten et al., 2019).

The process of creating an entrepreneurial university is inevitable if the university wants to be an active participant in what is happening in its environment, to initiate change and contribute to the development (technological, economic, social, cultural, etc.) of that environment (Etzkowitz, 2013). However, universities have not readily accepted criticism and initiatives for change. Locked in their own "ivory tower," many universities have been unprepared to face the fact that they are isolated from what is happening "out there" and that they must respond to the demands of the economy and global competition (Oberman Peterka, 2008). Many universities have continued as they are, ignoring the demands for change. "Of the institutions that had been established in the Western world by 1520, 85 still exist – the Roman Catholic church, the British Parliament, several Swiss cantons, and some 70 universities. Of these, perhaps the universities have experienced the least change." (Kerr, 2001:115, as cited in Oberman Peterka, 2008; Oberman Peterka & Salihovic, 2010).

In order to readily respond to challenges, universities must redefine their own mission, vision and activities, and replace the traditional approach with a new, entrepreneurial approach, if they want to sustain themselves in the long term (Hannon, 2013). The bearers of change in the way universities function are certainly American universities, which from the beginnings of American higher education saw themselves as institutions tasked with preparing individuals for different tasks in society (Lynton 1996, as cited in Oberman Peterka, 2008). The American university model is used as a basis for thinking about change in a large number of European universities. The American model is characterised by strong leadership, governing bodies, quality and accountability, and performance-based funding (Sporn, 1999, as cited in Oberman Peterka, 2008). Research on entrepreneurial universities is not only related to European or American universities; examples of research related to the development of entrepreneurial universities can be found among researchers in Asia, Latin America, Africa, Eastern Europe (Gibb & Haskins, 2018), and Australia (Ratten, 2022). Universities around the world are facing major challenges, which question the long-term survival of the traditional university model (Chan, 2007; Ernst&Young, 2012; Barber et al., 2013, as cited in Gibb & Haskins, 2018). The main challenges that universities face are responding to the social and economic needs of society, financing the growth in demand for higher education, contribution to economic growth, ways of solving the problem of unemployment of graduated students and creating employable, educated and motivated young people, contribution to social mobility, helping society respond to global competitive pressures, contribution to sustainability issues, strengthening of entrepreneurial and social enterprises, etc. (Gibb & Haskins, 2018; Klofsten et. al., 2019). If we look at the development of entrepreneurial universities as the university's response to changes in the environment and the need for internal adaptation to those changes, the circumstances and likelihood of their development are the same in America, Europe, and other regions of the world. Universities, wherever they are, must find solutions to internal and external influences (Klofsten et. al., 2019). The evidence for this is provided by Clark, who describes several cases of the creation of entrepreneurial universities around the world (Clark, 2004a; 2004b).

Some authors (Guerrero et al., 2015; Etzkowitz, 2003; Kirby, 2002; as cited in Radko, Belitski & Kalyuzhnova, 2022) define entrepreneurial university as any university that has the ability to innovate, recognise and create opportunities, and which can produce and transfer knowledge to society.

Due to its relationships with partners and concern for the development of the environment (internal and external), the university's entrepreneurial nature helps to build a positive reputation of the institution, which is crucial to its growth. A positive reputation for the university attracts more students, more initiatives, and consequently more funding, all of which are essential to the university's operation and growth. (Oberman Peterka, 2008).

3. How to change university towards entrepreneurial and innovative university?

Each university should find its own way to transform into an entrepreneurial university, depending on the situation the university is in, the resources and the environment of the university (Clark, 2004b). According to Clark (Clark, 1998; 2001; 2004b), there are five basic elements that characterise an entrepreneurial university, an institution that responds more effectively to external pressures for greater accountability and contributes to the economic, social, and civic development of society: strong leadership, diversified funding, developmental periphery, stimulated university core, integrated entrepreneurial culture.

Gibb (2005) defines the characteristics of an entrepreneurial university much more broadly, identifying as many as 19 key elements that make a university entrepreneurial:

1. Vision of the "idea" of the university, which includes a close connection of the university's development strategy with scenarios for the future, related to successful functioning of students in a global, competitive, mobile (in terms of people and resources) and multi-cultural society, characterised by a high degree of uncertainty and complexity.
2. Strong focus on the university as an institution focused on the imaginative use of knowledge, as opposed to the traditional university that creates knowledge for the sake of knowledge itself.
3. Accepting that the university earns its own independence (as opposed to autonomy guaranteed by public money) through a high ratio of private and alternative sources of funding compared to public sources.
4. Commitment to building balanced relationships with all stakeholders (including parents and students), which are based on the reputation of the university as an institution that actively and innovatively cooperates with the environment.
5. Firm commitment to involving the university in solving practical problems of the region and local community and evaluation of the university through the values and expectations of all stakeholders, not only closely related to peer teaching and research assessment.
6. Joint development of a research and development portfolio, which is clearly connected to regional needs.
7. Commitment to the entrepreneurial design of university organisation, learning from the best international practice.
8. Commitment to the integration and relevance of research and teaching.
9. Shared commitment to fostering interdisciplinary teaching and interdisciplinary diplomas across the university, incorporating active components of entrepreneurial teaching and pedagogy.
10. Maximising the potential for initiating interdisciplinary research and developing centres, which enter into partnerships with external stakeholders, whenever possible.
11. Flexibility in involving people from practice in teaching processes and exchange of researchers ("professors of practice", "adjunct professors", "visiting research and development fellows", "development sabbaticals")
12. Broad commitment to engaging in practical problem solving and valuing tacit learning.
13. Connecting with entrepreneurs through practical experiments, their involvement in the work of individual departments and joint exploitation of ideas, and encouraging the importance of practical work of students (injection of concerns of practitioners).
14. Link internal advancement not only to publishing, but to the development and understanding of other criteria for advancement, independent of research.
15. Flexibility in the use of non-scientific staff in project development, offering them status and promotion, if relevant, equal to that of scientists.
16. Emphasis on personal development of students and care for lifelong learning.
17. Strong support for openness and flexibility in the use of intellectual property.
18. Willingness to start partner firms with companies, by investing in firm's capital.
19. Strong support for identification of opportunities for starting new business ventures at the university.

The importance of the university's responsibility towards the community in which it operates is also demonstrated by the University Impact Ranking, introduced by Times Higher Education in 2019 with the aim of documenting the impact of university on society, rather than recording

and measuring performance based only on research and teaching. This first "edition" of the ranking included 450 universities from 76 countries around the world, which were evaluated using the metrics of the UN Sustainable Development Goals. Emphasising the importance of social impact as an indicator of excellence, this ranking aims to raise awareness of the importance of changing the role of universities, but consequently also to influence the quality of teaching and research. In 2022, 1406 universities from 106 countries participated in the ranking¹².

Based on these and numerous other studies on the importance of transforming the university into an innovative and entrepreneurial institution, which monitors and responds to changes in the environment, contributing to its development, the HEInnovate project was created, as well as the ACEEU university accreditation, which accredits universities around the world, evaluating their entrepreneurial capacity and active and responsible relationship with the environment.

3.1. HEInnovate – a self-reflection tool for exploring innovative and entrepreneurial potential of university

The foundations of the HEInnovate initiative were created in 2011 at the University - Business Forum, organised by the European Commission on the umbrella topic of entrepreneurial universities as engines of innovation. The event discussed what entrepreneurial and innovative higher education institutions are, what their main characteristics are, and whether there are entrepreneurial higher education institutions that could serve as examples for learning. The main conclusion of the forum was related to the need to develop a framework, which would serve higher education institutions as a tool for learning and inspiration for change.³ Thus, as an initiative of the European Commission, DG Education and Culture, the OECD LEED Forum and with the help of six independent experts, HEInnovate was created.⁴

HEInnovate is a free tool for self-assessment of entrepreneurial and innovative potential of types of higher education institutions. It consists of eight areas/pillars important for creating an entrepreneurial and innovative institution (Hannon, 2013). Given the fact that each university should find its own way of transforming into an entrepreneurial university depending on the situation it is in, the resources and the environment of the university (Clark 2004b), HEInnovate is not a benchmarking tool. The HEInnovate tool is intended for those higher education institutions that are interested in evaluating themselves in relation to entrepreneurial and innovative capacity. This tool can be used by individuals, but also by groups and teams. It is very useful in leading change at the institution, and monitoring results over time and achieving the set goals, related to the creation of an entrepreneurial and innovative higher education institution.⁵

The creators of this tool start from a very broad definition of an entrepreneurial and innovative higher education institution, which can accommodate institutional diversity, given by Gibb (2013), as cited in HEInnovate Concept Note⁶:

"Entrepreneurial higher education institutions are designed to empower staff and students to demonstrate enterprise, innovation and creativity in research, teaching and pursuit and use of knowledge across boundaries. They contribute effectively to the enhancement of learning in a

¹ <https://www.timeshighereducation.com/impactrankings>, 26.1.2023.

² https://www.heinnovate.eu/sites/default/files/2021-09/UBF_Brussels_Forum_Report_2019_v5.pdf, 26.1.2023.

³ <https://heinnovate.eu/sites/default/files/2021-11/HEInnovate%20general%20presentation.pdf>, 23.1.2023.

⁴ <https://heinnovate.eu/en/about/heinnovate>, 23.1.2023.

⁵ <https://heinnovate.eu/en/about/heinnovate>, 23.1.2023.

⁶ file:///C:/Users/Sun%C4%8Dica%20Oberman/Downloads/heinnovate_concept_note.pdf 23.1.2023.

societal environment characterised by high levels of uncertainty and complexity and they are dedicated to creating public value via a process of open engagement, mutual learning, discovery and exchange with all stakeholders in society - local, national and international."

The eight areas/pillars of an entrepreneurial and innovative higher education institution are based on the results of numerous scientific researches on this topic, partially described in the previous chapters of this paper, and are important in creating an entrepreneurial and innovative higher education institution. They are⁷:

1. Leadership and governance;
Leadership and governance are two key factors in developing and creating an entrepreneurial and innovative higher education institution. They can encourage its development through the creation of a shared vision, culture, and not overloaded management systems. "Positive and responsive leadership is what maintains a dynamic and successful organisation, particularly in times of uncertainty, unpredictability and complexity."
2. Organisational capacity: funding, people and incentives;
Entrepreneurial and innovative institutions constantly strive to develop their own organisational capacity, which primarily refers to the removal of barriers to the promotion and development of innovation and to the empowerment of individuals in implementing ideas, which contribute to the creation and development of the institution's entrepreneurial and innovative potential, and to the strengthening of ties with internal and external stakeholders.
3. Entrepreneurial teaching and learning;
Entrepreneurial teaching and learning require something more than standard lectures and textbook learning. "Entrepreneurial" pedagogy aims to develop entrepreneurial capacities and abilities of students through experimental, collaborative and reflective learning.
4. Preparing and supporting entrepreneurs;
Preparing and supporting entrepreneurs entails various learning strategies and the creation of an environment that offers targeted support to students and teachers who want to start their own company.
5. Digital transformation and capability;
Digital transformation applies to all aspects of a higher education institution. Institutions should make the most of the opportunities provided by digital technologies, which are crucial for the development of innovation and entrepreneurship. Among other things, this refers to strengthening digital competences of employees and students.
6. Knowledge exchange and collaboration;
A negative attitude towards entrepreneurship, entrepreneurs and businesses is the main obstacle to networking and collaboration with the business sector, which is an important determinant of an innovative and entrepreneurial higher education institution.
7. Internationalised institution;

⁷ file:///C:/Users/Sun%C4%8Dica%20Oberman/Downloads/heinnovate_concept_note.pdf 23.1.2023.

Internationalisation is an important indicator of quality in higher education. It is an incentive for constant change and development. Higher education institutions can be internationalised through activities in teaching, research or knowledge exchange and collaboration, as well as through teachers and students.

8. Measuring impact;

Measuring impact of an innovative and entrepreneurial higher education institution is neither simple nor straightforward. Excellence is assessed through the opinions of all stakeholders in relation to the creation of value for society.

Each institution can decide which area to start from or which area to focus on. Everyone chooses their own path and priorities in the process of transformation into an entrepreneurial and innovative institution, depending on their own position, resources and the environment in which they operate.

Figure 1: HEInnovate areas of entrepreneurial university



Source: www.heinnovate.eu, adapted by the author

3.2. ACEEU accreditation – the only comprehensive accreditation system that focuses on entrepreneurship and engagement

The Accreditation Council for Entrepreneurial and Engaged Universities (ACEEU) is the only quality assurance organisation in the world that focuses on engagement and entrepreneurship

in higher education⁸. ACEEU strives to be the leader of new trends in higher education by evaluating, supporting and encouraging higher education institutions on their way to achieving excellence in their third mission. ACEEU accredits higher education institutions for entrepreneurship and/or community engagement at the institutional (university) or lower (faculty, department) level.

As they state themselves, it all started with the question: "If quality assurance in education is driven by accreditation and research is driven by rankings, what about the third mission?"⁹ ACEEU was founded in 2016 as part of UIIN¹⁰ (University Industry Innovation Network) in Amsterdam, the Netherlands, and was later established as an independent organisation, headquartered in Münster, Germany. ACEEU is the world's first accreditation network focused on the university's third mission. In this way, it promotes the change of universities, redefines quality standards in higher education, encourages and empowers university stakeholders to have a proactive attitude towards the university, encourage change, accelerate innovation and collaboration.¹¹

This accreditation is oriented towards students, employees, business and academic partners, the wider community and society as a whole. ACEEU focuses on promoting entrepreneurial capacity of the entire university, fostering creation of employable and responsible graduates, building relationships with the community and the wide-ranging impact on numerous societal actors and entities.¹²

The main focus of ACEEU is creating "a nurturing, collaborative and interdisciplinary ecosystem" where engaged and entrepreneurial universities is the *modus operandi* in higher education. As such, universities become agents of change in society by collaborating with industry and the community to address social and economic challenges, maximising student and employee learning and progress.¹³

Since 2017, 11 higher education institutions have been accredited with ACEEU accreditation, namely: Adam Mickiewicz University, Poland; University of Turku, Finland; Universidad Carlos III de Madrid, Spain; School of Engineering (JTH) of the Jönköping University, Sweden; Universiti Malaysia Kelantan, Malaysia; University of Malaga, Spain; University of Tartu, Estonia; Chalmers University of Technology, Sweden; Management and Science University, Malaysia; Universidad EAN, Colombia; University Adelaide, Australia.

What institutions get with this accreditation is a cultural change (the accreditation process encourages change through the inclusion of a large number of stakeholders in the process itself), organisational development (the accreditation process enables the creation of an information base, provides recommendations and represents a good basis for quality decision-making) and confirmation of excellence (accreditation gives a clear message to students, employees, business and academic partners about who you are – an institution oriented towards entrepreneurship and social engagement).¹⁴

⁸ <https://www.aceeu.org/>, 24.1.2023.

⁹ <https://www.aceeu.org/about/history>, 25.1.2023.

¹⁰ <https://www.uiin.org/>, 26.1.2023.

¹¹ <https://www.aceeu.org/about/history>, 25.1.2023.

¹² <https://www.aceeu.org/accreditation/value>, 24.1.2023.

¹³ <https://www.aceeu.org/about/vision>, 25.1.2023.

¹⁴ <https://www.aceeu.org/>, 25.1.2023.

With the aim of accrediting universities for entrepreneurship and/or social engagement, ACEEU has developed a set of standards, distributed in five dimensions (orientation and strategy; people and organisational capacity; drivers and enablers; education, research and third mission activities; innovation and impact). Each of the five mentioned dimensions consists of 3 standards, which ultimately represents the accreditation framework of ACEEU accreditation.¹⁵ Although the areas and standards are the same both for entrepreneurial and engaged universities, in the accreditation process, universities must submit evidence for each standard, depending on whether they consider themselves an engaged or entrepreneurial institution and whether they are seeking accreditation as an entrepreneurial or engaged institution.

The standards and areas that make up the ACEEU accreditation framework are briefly described below.

Dimension 1: Orientation and strategy: an entrepreneurial university is strategically positioned to contribute to the development of society, with a focus on economic impact.

Standards: institutional commitment (the university is strategically and publicly oriented to entrepreneurship), shared goals (the university has defined measurable goals related to entrepreneurship, which are understood and shared by a large number of people in the organisation) and financial planning (the university has a sustainable commitment to entrepreneurship, which is seen through commercial activities, financial income and expenditure plan).

Dimension 2: People and organisational capacity: an entrepreneurial university develops organisational capacity for risk-taking, entrepreneurial organisational culture and entrepreneurial behaviour.

Standards: leadership (the university's values and approach to leadership encourage entrepreneurship and risk-taking), staff (the profile of teaching and non-teaching staff at the university is able to respond to the current and future requirements of the entrepreneurial strategy), incentives and rewards (the university has a clear system of incentives and rewards for empowering employees to support and undertake entrepreneurial activities).

Dimension 3: Drivers and enablers: an entrepreneurial university develops a comprehensive support system that enables innovation at the level of individuals and groups.

Standards: Culture (a culture that is suitable for entrepreneurial thinking and acting is encouraged), internal support structures (internal support services enable the progress of individuals in their entrepreneurial activities), service alignment (in addition to its internal support structures, the university also provides access to external services, which provides comprehensive support for entrepreneurial activities at the university).

Dimension 4: Education, research and third mission activities: an entrepreneurial university provides education that is focused on the development of entrepreneurial mindset, and promotes a wide range of different career development opportunities. The university's research activities provide income and have an intellectual contribution with a strong potential for commercialisation. Third mission activities are focused on entrepreneurship.

Standards: education (the university provides a large number of opportunities for the development of entrepreneurial knowledge, skills and activities, and consequently provides a wide range of opportunities for career development), research (the university's research activity aims to support the creation of economic effects and contribute to the development of the field

¹⁵ https://www.aceeu.org/docs/ACEEU_Standards_and_Guidelines_Entrepreneurial_University_v1.0.pdf, 25.1.2023.

of entrepreneurship), third mission activities (the university has a wide range of commercial activities).

Dimension 5: Innovation and impact: an entrepreneurial university is an influential stakeholder in the entrepreneurial ecosystem focused on stronger economic impact in the environment. Standards: continuous improvement (the university is achieving continuous improvement in entrepreneurship, through regular evaluation of its performance against the set goals), influence within the ecosystem (the university is an influential stakeholder in the entrepreneurial ecosystem), impact (through entrepreneurship, the university generates a wide range of benefits, and is working towards stronger economic impacts in the environment through, for example, an increased number of new jobs).

Each standard can be evaluated as unsatisfactory, satisfactory, and excellent. In order to receive standard ACEEU accreditation, universities must have at least a satisfactory level for each standard. Premium ACEEU accreditation can be awarded to universities where at least 12 standards have been evaluated as excellent, with at least two dimensions where all standards have been evaluated as excellent.

Figure 2: ACEEU accreditation areas



Source: <https://www.aceeu.org/>, adapted by the author

3.3. Comparison of HEInnovate and ACEEU approaches to creating entrepreneurial and innovative universities

The common foundation in both described approaches to entrepreneurial universities is the awareness of the necessity to change the university in order to respond faster and better to the demands of the environment, which is constantly changing and becoming more and more

uncertain. Universities should be active actors in society, initiating changes, innovating and offering solutions to problems in the environment in which they operate. The academic freedom of the university includes responsibility towards the community, in terms of contributing to its development, in the cultural, social and economic sense.

The growing awareness of the importance of university change is also visible in numerous scientific researches mentioned in this paper. Cooperation between universities and the business community in the broadest sense is the topic of many conferences and initiatives, such as University Business Forum¹⁶ and University Industry Innovation Network (UIIN).¹⁷ Cooperation between the business sector and universities contributes to identifying the needs for the necessary knowledge and skills, encourages innovation, creativity and entrepreneurship, increases the employability of graduates, as well as their personal development.¹⁸ The latest initiative is the creation of the European Network of Innovative Higher Education Institutions (ENIHEI)¹⁹, which aims "to exchange knowledge, ideas and experiences on how higher education can promote an innovation culture, and enable creativity, entrepreneurship and talent."²⁰

The HEInnovate tool was developed to help universities lead the change towards the creation of entrepreneurial and innovative institutions, which will be able to achieve stronger cooperation with the business sector and community, contribute to the development of students, their employability, and ultimately, the development of the community as a whole. ACEEU accreditation was created as a result of the desire to give recognition to universities, which have put entrepreneurial activities and impact in the community in their strategic focus, but also to be a kind of guide in their change towards entrepreneurial higher education institutions. Although these are two completely different approaches, they have a common focus in emphasising the importance of creating an entrepreneurial and innovative higher education institution.

HEInnovate is an online, self-assessment tool that helps higher education institutions assess the state of the higher education institution, related to its entrepreneurial and innovative potential in eight different areas. HEInnovate can be used both as a tool for identifying areas for improvement and a tool for leading the change of the higher education institution towards an entrepreneurial and innovative institution. Each institution chooses its own path of change, chooses the area it wants to develop in accordance with the settings of the entrepreneurial/innovative higher education institution. Although all areas are equally important and connected, different institutions may have different priorities in their own development, and some may have some areas that are more developed and some that are less developed.

ACEEU accreditation is an external evaluation process, which leads to obtaining accreditation for entrepreneurial and engaged universities. It assesses institutional commitment to entrepreneurship, from the strategic vision, organisational structure, leadership and impact that

¹⁶ <https://education.ec.europa.eu/education-levels/higher-education/innovation-in-education/university-business-cooperation>, 31.1.2023.

¹⁷ <https://www.uiin.org/>, 31.1.2023.

¹⁸ <https://education.ec.europa.eu/education-levels/higher-education/innovation-in-education/university-business-cooperation>, 31.1.2023.

¹⁹ <https://education.ec.europa.eu/education-levels/higher-education/innovation-in-education/european-network-of-innovative-higher-education-institutions>, 31.1.2023.

²⁰ <https://education.ec.europa.eu/education-levels/higher-education/innovation-in-education/european-network-of-innovative-higher-education-institutions>, 31.1.2023.

the institution has in the community. Having ACEEU accreditation means that the institution meets at least 12 out of 15 evaluated criteria/standards, and fully meets two areas (out of a total of five).

The purpose of the HEInnovate tool is self-assessment, which gives institutions feedback on their entrepreneurial/innovative capacity. Based on the received feedback, the institution itself decides what to do next.

ACEEU is an accreditation, which represents a quality assurance and confirmation system at the institution, related to the entrepreneurial capacity of the higher education institution. The process of obtaining ACEEU accreditation is an in-depth and very strict assessment of the institution, which requires evidence in terms of the existence of certain documentation, related to the confirmation of the existence of specific elements of the institution's entrepreneurial orientation.

HEInnovate is a free online tool, which can be used by individuals, groups, teams, while ACEEU accreditation is a commercial product, which has its price.

The HEInnovate tool provides feedback to higher education institutions about the entrepreneurial/innovative potential of the institution, but does not provide any formal accreditation or recognition.

HEInnovate covers a wide spectrum of areas, which describe an entrepreneurial/innovative institution in the broadest sense, while ACEEU is focused on entrepreneurial activities of the institution and their impact on the community.

Table 1 summarises the similarities and differences of the two approaches to evaluating the entrepreneurial character of higher education institutions, with regard to goal, scope, purpose, and the method of use of the tools.

Table 1: Comparison of HEInnovate and ACEEU

Criterion for comparison	HEInnovate	ACEEU
Goal	Self-assessment on the entrepreneurial/innovative capacity of the HEI	Quality assurance and confirmation system at the institution, related to the HEI's entrepreneurial capacity
Scope	A tool for identifying areas for improvement and a tool for managing change at the HEI towards an entrepreneurial/innovative institution	Assessment of institutional commitment to entrepreneurship with the aim of obtaining accreditation
Purpose	Online, self-assessment tool	External evaluation process
Method of use	Free tool	Paid accreditation process

Source: Author

4. Conclusion

To meet the demands of the society in which they operate, universities must change. The transformation of the university is primarily related to the creation of relevant knowledge that contributes to the competitiveness of individuals, but also of society as a whole. Universities need to work more closely with their environment, involve different stakeholders in decision-making processes, and be willing to change current ways of working. Universities are required to be open and receptive to society's problems, to develop innovative solutions, and to apply them widely in solving these problems. To achieve this, universities need to develop their innovative and entrepreneurial potential, which is not possible without engaging with and learning from stakeholders (internal and external), requiring a shift in focus from "knowledge transfer" to knowledge exchange.

To support the university's shift towards an innovative and entrepreneurial institution/organisation, the European Commission, in collaboration with the OECD, has developed the HEInnovate tool, and the University Industry Innovation Network (UIIN) has developed a recognisable accreditation system to accredit entrepreneurial universities. Although both systems are independent of each other, they share a similar goal: to raise awareness of the importance of change in higher education and to contribute to the development of innovative and entrepreneurial higher education institutions. The HEInnovate tool is a means of self-assessing the entrepreneurial and innovative capacity of HEIs, but it can also serve as a useful tool for initiating change in universities (and other HEIs) by helping to understand what is meant by innovative and entrepreneurial HEIs and what needs to be done to make the institution innovative. Universities can "test" the changes made in an attempt to obtain ACEEU accreditation, which evaluates entrepreneurial activities at universities and focuses on activities related to the university's third mission, i.e., the university's relationship with the environment (stakeholders) and the ability to create relevant knowledge in products and services that the university offers with the goal of solving problems and developing the environment and society as a whole.

Each higher education institution chooses its own path and method of change depending on its situation, resources and opportunities in its environment. Regardless of which path and method of change is chosen, it is important to realise that the transformation of the higher education institution towards an entrepreneurial and innovative organisation is a *conditio sine qua non* for the survival of the higher education institution as an important stakeholder (actor) of the environment in which it operates, but also of society as a whole.

It would be interesting to investigate to what extent Croatian universities are ready for the change and what they have done on the way to becoming entrepreneurial and innovative institutions, what they are missing and what they should/could still do to be competitive on the regional and European level.

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A scientific paper

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EFFECTIVE LEADERSHIP AND MANAGEMENT OF OPERATIONAL LEVEL MANAGER

ABSTRACT

A successful organization depends on its employee as its most valuable resource. To fully utilize their potential effective management and leadership are crucial. In most organizations, especially large ones, there are three levels of management – top, middle and bottom. Although all levels work toward the same goal they have distinct roles, assignments and functions, However, coordination among the various levels of management can often be a barrier to successful operations, especially in public companies where an inherited organizational culture and resistance to change can impede progress. The purpose of this study is to examine the impact of operational management on organizational efficiency in public companies, by analyzing the relationships among managers at different levels and the availability and quality of information needed by lower levels of management. The objectives of this study are to analyze the management skills required at different levels, to examine the relationships between operational managers and higher-level managers, and to evaluate the availability, quality, and timeliness of information needed by lower-level managers to be successful. A survey was conducted among 61 lower-level managers in public companies in Croatia to gain insight into their ability to make independent decisions, propose innovative solutions and communicate with middle level managers. The aim of the study is to better understand the position of lower-level managers, their independence and the untapped potential of their knowledge and skills, and to identify their real impact on the efficiency and success of the company.

Key words: *Management levels, Efficiency of operational management, Feedback, Public companies.*

1. Introduction

With the development of management as a scientific discipline, numerous authors have defined, analyzed, and described the skills necessary for successfully leading an organization to achieve desired results and objectives. However, the importance and impact of these skills vary at different levels of management. Lower-level managers require more technical knowledge and skills than higher-level managers due to their operational roles. On the other hand, higher levels of management are attributed with so-called conceptual skills, i.e., the ability to see the big picture through predictions, processing information, planning, defining the organization's vision, and setting strategic guidelines. However, this does not mean that technical skills are exclusively reserved for lower-level management, and conceptual skills for higher-level management. Managers at all levels must have the ability to effectively supervise work, mentor and advise employees (technical and professional knowledge), understand how their job fits into the organization's vision (conceptual skills), and possess a high degree of social skills required for quality communication, coordination, motivation, and overcoming challenges (human skills). Considering that managers at lower levels are closest to operational processes, it can be assumed that the important role of this managerial level should be proposing innovative solutions that would result in greater efficiency or improvement of relationships with end-users of products and/or services, as well as improving the company's image. What emerges as an important question is the level of autonomy of lower management in managing people, making operational or strategic decisions, and proposing improvements. The success of managers at the operational level depends greatly on the relationship they have with their superiors, i.e., managers at the middle and top level. Therefore, it is important to investigate the level of availability, quality, and timeliness of information necessary for lower-level managers to make their actions as effective as possible. This paper analyzes managerial skills at all levels of management, with a particular focus on operational management as the lowest level of management. The paper aims to determine the level of freedom for lower-level management related to proposing ideas for improving work processes and their perception of their impact on organizational effectiveness. The focus of the research is public Croatian companies, where the selection of managers at higher levels is often politicized, and any potential losses are often covered by the state, which can be a stumbling block for operational management.

Different authors categorize skills in different ways. One of the most prevalent and highly cited classifications is the so-called Three Skills Approach, which was defined by Katz in 1955. According to Katz (1955), this approach suggests that there are three basic sets of skills that can be developed and improved, and they relate to technical, human (communication), and conceptual skills. Although they are usually analyzed separately, it is important to emphasize that these skills are interconnected and that managers, regardless of their level, must possess all three sets of skills to be successful in their job.

Technical skills refer to the knowledge and expertise in a specific type of work and are most prevalent at lower levels of management. They include abilities and knowledge in a certain area, analytical skills, and the ability to use appropriate tools and techniques, and play a key role in creating the actual product for which the company was started (Northouse and Northouse, 2013).

The focus of technical skills is on performing a job or task, while the focus of human skills is on building strong interpersonal relationships that not only contribute to achieving common goals, but also enhance the collective's connections and cooperation. Human skills are of approximately equal importance for all levels of management and represent the knowledge

and ability to work with people. Managers who have highly developed human skills successfully collaborate with their employees, colleagues, or supervisors (Northouse & Northouse, 2013) and care significantly more than others about what motivates their employees. According to Trigueros et al. (2020), collaboration, empathy, and respect for others are some of the significant characteristics of human skills. In fact, human skills represent interpersonal skills defined as "goal-directed behaviors used in face-to-face interactions, in order to bring about a desired state of affairs" (Guzmán et al., 2020, p. 547). According to Ashkenas and Manville (2018), the role of a leader is to recruit, develop, and reward a team of great people to carry out the strategy which cannot be done without excellent human skills.

The importance of conceptual skills decreases with lower levels of management. Conceptual skills refer to strategic management, i.e., the ability to shape a clear vision and achievable goals, make decisions, process information, plan, connect all parts of the organization and see the bigger picture. Additionally, according to Jaqua and Jaqua (2021), having conceptual skills, among other things, means considering the needs of stakeholders, not being afraid of failure, and having a willingness to constantly learn. Operational/lower/technical management represents the lowest level of management, and the very name suggests that operational managers must be in constant and immediate contact with employees who are the executors of delegated business activities. Although the lowest, this level is of utmost importance for any organization because it is assumed that managers at this level are able to detect certain problems most accurately in performing operational tasks in work or organizational procedures. Therefore, in addition to important technical knowledge, operational managers must have developed human and conceptual skills in order to timely respond to changes in the organization and the environment, coordinate tasks among their employees, and successfully transmit all important information, new ideas, proposals, and possible problems to higher levels of management. However, the question arises as to how aware other levels of management are that lower-level managers, because of their operational knowledge but perhaps even more importantly, their central positions and access to information, can contribute to the effective functioning of the organization.

2. Management levels and required skills

Different authors categorize skills in different ways. One of the most prevalent and highly cited classifications is the so-called Three Skills Approach, which was defined by Katz in 1955. According to Katz (1955), this approach suggests that there are three basic sets of skills that can be developed and improved, and they relate to technical, human (communication), and conceptual skills. Although they are usually analyzed separately, it is important to emphasize that these skills are interconnected and that managers, regardless of their level, must possess all three sets of skills to be successful in their job.

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3. Management style and the level of responsibility of lower-level managers

According to Whetten and Cameron (2011), skills are not just repetitive behaviours, but integrated sets of complex responses, which is why it is important, especially in the process of managing people and organizations, to combine different sets of skills. Although managers with different leadership styles and personalities apply different skills, many authors (Whetten & Cameron, 2011; Northouse, 2010; Chapman & Lund O'Neil, 2000) believe that there is a set of skills that all successful managers have developed. Successful managers are actually leaders who create a motivating environment, empower their employees by delegating tasks and assigning autonomy and responsibility, use their own power and influence to enable others to successfully achieve personal and organizational goals, and know how to communicate the importance of changes for organizational effectiveness.

Operational managers are responsible for the actual production and/or sale of goods and services, and their primary focus is on directing and controlling their employees. However, in addition to being responsible for the quality and quantity of products and services, they are actually the closest to operational workers and customers, so their skills also depend on the organization's image. Therefore, in addition to possessing operational knowledge, lower-level

managers must have the ability to motivate their employees, as well as themselves, to face complex organizational challenges, which is actually the foundation of management (Northouse, 2010).

However, in order for operational managers to motivate, they must also be motivated. Top managers must ensure that operational managers understand the company's vision and goals and what exactly they need to do to contribute to achieving those goals. The most important element of any relationship is good communication. Communicating expectations, clear, transparent, and regular feedback on the performance of operational managers will create not only a good relationship between managers at different levels but will also reduce the chances of misinterpreted tasks and misunderstood words.

According to Bahtijarević-Šiber (1999), increasing employee motivation means improving productivity, efficiency, and creativity of work, improving the quality of work-life, and strengthening the competitive ability and success of the organization. To maximize employee motivation, it's important to consider their individual needs and desires. This includes considering both intrinsic elements of motivation, such as satisfaction with engaging in an activity, and extrinsic ones, such as achieving positive outcomes or avoiding negative consequences. Creating a motivating environment means creating a circle of safety and trust (Sinek, 2014) which denotes an environment in which employees can feel vulnerable among their peers, admit their mistakes, and have enough freedom to feel valued and important in the organization.

4. Methodology

The purpose of this study is to contribute to the understanding of the position of managers at lower levels of public companies, their ability to independently make operational or strategic decisions, propose innovative solutions, and overcome challenges and obstacles related to personal development, employee efficiency, and the quality of the products or services for which they are responsible. The study involved 61 operational managers in public companies in the same sector in the Republic of Croatia, who participated voluntarily and anonymously through an online questionnaire created with the survey program Alchemer. Data were collected from May to December 2022. The questionnaire included demographic information, questions about the area of responsibility of operational managers, their relationships with subordinates, and the communication process between operational managers and middle-level managers. The data were then processed using the survey program Alchemer. The collected data was analyzed using descriptive statistics to explore the necessary skills for different levels of management, as discussed in the theoretical part of the paper, to analyze the relationship between operational level managers and higher-level managers, as well as the availability, quality, and timeliness of information required for effective lower-level management.

5. Result and discussion

To examine their impact on improving overall organisational performance, the subjective attitudes and assessments of lower management in three public companies in the Republic of Croatia were studied. Several measurable parameters were used, including integrity, timeliness and flow of information between different levels of management, freedom to propose innovations, acceptance of proposed ideas, time required to implement ideas, and recognition of increased efficiency.

The managers who operate at the operational level of management were examined, of which the largest number were managers aged 40 to 50 years (41%) and over 50 years (27.9%), and predominantly male (77%). The largest number of managers, 34 of them, had a completed higher education degree (55.7%), 14 had a higher vocational degree (23%), and a total of 13 operational managers had a secondary vocational degree (21.3%).

Most managers at this level lead a group of up to 5 people, 42.6% (26) of whom are in this category. Another 19.7% (12) of managers are responsible for 6 to 10 employees, while 37.7% (23) manage a group of more than 10 employees. Both men and women mostly lead groups of up to 5 people. However, among managers who lead groups of more than 10 employees, 95.7% are men.

78.3% of respondents indicated that formal meetings with management are organized. Of these, 32.6% organize meetings with their supervisors once a day, 19.6% more than once a week, and 26.1% only when necessary, while 21.7% do not organize such meetings with their supervisors. In cases where urgent meetings are required, the majority of respondents (59%) indicated that the meeting usually takes place within 30 minutes. Another 18% reported holding the meeting within an hour, while 16.4% hold the meeting until the end of the day. Only a small number of respondents (6.6%) reported holding a meeting with senior management within two days of submitting a request, provided the urgency of the matter is known. Overall, these findings suggest that while most respondents do organize formal meetings with senior management, the frequency and urgency of these meetings vary widely by individual and specific circumstances.

Regarding questions from the questionnaire related to the flow of information from middle to operational management, 90.2% of respondents claim that the information they need for successful management of work processes and execution of work tasks is regularly and timely forwarded from higher management levels. 83.6% of respondents also believe that information related to the status of workers, their material and other rights, methods, and times of internal controls, etc. are regularly and timely forwarded to them.

According to the questionnaire, 90.2% of respondents indicated that they regularly and timely receive the information they need to successfully manage work processes and perform work tasks from higher levels of management. Similarly, 83.6% of respondents indicated that they receive regular and timely information about the status of employees, their material and other rights, internal controls, and other relevant information. These results indicate that the majority of middle and operational managers feel adequately informed by higher levels of management, which can have a positive impact on their ability to make informed decisions and perform their jobs more effectively.

Given that the operational level of business mostly refers to work processes in the company and can directly affect the work efficiency of the entire company, employees as well as managers at that level can best assess how work processes can be improved. Operational-level managers accept employee ideas for improving work processes, with almost 90.2% of respondents presenting their employees' ideas to their superiors or middle management and 93.4% of them have the opportunity to implement the ideas proposed by their employees.

According to more than 73% of respondents, these implemented ideas have led to improved work processes and increased employee efficiency. A smaller number of respondents (8.2%) present their employees' ideas as their own because they believe that this will make their ideas more readily accepted. However, while a large majority of respondents propose their employees' ideas to middle management, they propose their own ideas to a lesser extent. The research has shown that highly educated operational managers between the ages of 40 and 50

are the most likely to propose their own ideas for improving work processes to middle management. Interestingly, highly educated operational managers are also considered the most underestimated group of respondents. 88.5% of them believe that, despite their high level of education, they perform lower-skilled jobs, which certainly affects their motivation and efficiency.

The research showed that 62.3% of operational managers proposed their own ideas for improving work processes to middle-level management, but only 52.5% of respondents agreed that their ideas were accepted and implemented. 21.3% of respondents believe that their superiors present their ideas, successes, and contributions to achieving organizational goals as shared ideas, while 18% of respondents suspect or have evidence that their superiors present their ideas as their own. According to the research, the reason for presenting others' ideas as shared or one's own, according to respondents, is partly due to fear for the manager's reputation at the middle level (belief that they may lose credibility with their superiors) or fear of being fired (belief that an innovative proposal that came from an operational manager could jeopardize their job). Although these fears may be justified, they can also be potentially harmful to the company's final business results, interpersonal relationships, and the creation of a supportive work environment.

If operational-level managers propose their own ideas, the time frame for implementing their ideas depends on the resources needed for their implementation. If significant resources and additional engagement from superiors are required, 74.3% of ideas will be implemented within 6 months. However, as many as 25.7% of respondents did not propose their ideas because they believe that their idea will not be considered precisely because its implementation requires significant organizational resources. If the implementation of an idea does not require significant resources and the involvement of superiors, such ideas are usually implemented within one month (45.9%) to six months (36.1%), while about 15% of respondents indicated that a period of more than six months was required. In this case, only about 3% of respondents did not propose any ideas at all because they did not believe their superiors would even consider them.

The research shows that the companies surveyed rewarded their employees with tangible (monetary) rewards such as salary increases, one-time bonuses and the like (49.2%), public praise (47.5%), and non-tangible monetary rewards such as paid vacation, voluntary travel, continuing education and the like (23%). Interestingly, only 27% of respondents who received a tangible reward were satisfied with the reward they received, while 36% of respondents who received a non-tangible reward were satisfied with the reward they received. The results show that supervisors are more inclined to give material rewards, but when considering employee satisfaction with the reward received, supervisors should consider the values, needs, and desires of their subordinates, as appropriate rewards can promote employee motivation and effectiveness, which consequently leads to successful performance of the entire organization.

6. Conclusion

In recent decades, there have been significant changes in the way traditional management practices are carried out in public institutions. Increasing demands from society and rapid technological change, among other factors, have led to the need for the public sector to become more flexible, transparent, and efficient. This means that managing people in public organizations today requires much more participation and collaboration, and employees at all levels must be enabled to propose ideas and innovative solutions and participate in the

decision-making process. Although things are changing significantly in Croatia, various quality standards and performance measurement systems are still underutilised. The transformation of traditional management in public companies requires first and foremost well-trained and capable employees with a wide range of skills, including teamwork, communication, motivation, delegation, employee empowerment, and change management, which is especially important in today's fast-changing and unpredictable business environment.

The purpose of this paper was to examine the impact of operational management on the efficiency of business processes in public companies through an analysis of the relationships between operational level managers and middle level managers.

From the research findings, it can be concluded that the relationship between operational and middle management is relatively good, although there is room for improvement. To improve the relationship between operational and middle management, it is recommended that clearer lines of communication be established between the different levels of management and more frequent regular meetings between these two levels of management. Lack of coordination between these two groups can lead to inefficient use of resources, process failures, and lack of planning. In addition, the perception of operational managers in the 40 to 50 age range, who feel most underappreciated, can be a major problem. Their perceptions can lead to a decrease in motivation and efficiency, and thus a lower quality of their work. Therefore, it is important that the organization establishes clear communication channels and mechanisms for collaboration and allows operational managers to understand why their ideas and suggestions are or are not considered in decision-making. In this way, middle managers ensure that their decisions are transparent and adequately explained to operational managers, while operational managers should actively participate in the decision-making process to ensure better coordination. Although the roles of managers at different levels are different, they are interdependent and interdependent, so it is important that operational and middle managers work together to achieve organizational goals.

This research has its limitations. First, the findings may not be generalizable to other sectors or countries since it was conducted only in one sector and in Croatia. Additionally, since only lower-level managers were included in the study the perspectives and experience of middle and upper level managers were not taken into account which may limit the depth of the analysis of the relationship between different levels of management. Furthermore, small sample of companies may not be sufficient to capture the diversity and complexity of lower-level management practices, and the study may be subject to biases and limitations related to the specific companies selected. Finally, the study does not provide a comprehensive understanding of the factors that contribute to effective lower level management such as organizational culture, leadership styles, contextual factors, etc. All the limitation outlined above have implications for future research.

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A scientific paper

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IMPACT OF COVID-19 ON BUSINESS ANGEL INVESTMENTS

ABSTRACT

Business angels play a very important role in today's economy by providing venture capital for young, innovative companies, contributing to economic growth and technological progress. Apart from family and friends, business angels are the most important source of financing for start-up companies providing venture capital for the earliest stages of new business operations. Business angels are always on the lookout for investments that will return to them multiple times over a period of five years. They usually do not have a specific field of activity, but mainly invest in healthcare, software, biotechnology, energy and IT services. Business angels invest in companies that have above-average growth potential, whether they have an innovative or new product, quality personnel, or have the potential to achieve a significant market share. Since venture capital funds cannot cover a large number of small business deals, they reduced financing in "risky" small and medium-sized enterprises. Due to this, they are shifting to larger investments in later stages with higher returns. Business angel investments are very useful for companies that are just entering the market, especially if we consider the unavailability of traditional sources of financing, such as bank loans. The aim of the paper is to identify how Covid-19 changed the business angel activity. The empirical part of the paper is based on the comparison of European Investment Fund (EIF) business angel survey for 2020 and 2021/2022. The results of the impact of covid 19 on business angels' activity show that securing additional capital for their portfolio companies in 2021/2022 compared to 2020 was expected to decrease, while the possibility of insolvency of the portfolio companies decreased. Furthermore, the current and expected final performance of portfolio companies is considered more positive in 2021/2022 compared to 2020.

Key words: covid 19, business angels, business angel investment.

1. Introduction

Business angels are individual investors that provide financing to small businesses in their early stages, participating in the establishment, growth and development of new companies (Deffains-Crapsky and Klein, 2016). They are the most important external source of risk capital at that stage, filling the gap left by founders, family and friends and institutional funds (Brett and Dumay, 2017, Mason et al, 2022, Zinecker et al, 2022a, Zinecker et al, 2022b, Vojmčková, 2023). In addition to financial resources, their contribution to the company includes expertise in a specific area, industry knowledge and various valuable business

contacts. The mentioned non- financial support is just as important as the financial support (NACO, 2021). In exchange for their support, angel investors often have a seat on the boards of directors of the companies in which they invest (Zinecker et al., 2022a), meaning that the owners mostly give up a certain control over their business. Although, it is necessary to point out how the primary goal of business angels investments is the expect capital gain realized at exit (Mason et al., 2022. Mason et al, 2016). Within European companies, business angel capital is becoming very important because of establishment and growth of angel networks, (i.e. organized groups of business angel investors who pool their resources to invest based on a similar philosophy). Unlike venture capitalists, who are usually interested in how they will make money from their investments, angel investors' focus more on what the company actually does (B-Capp, 2022).

Business angel investments are risky, and more than half of all investments result in failure. These risks are also increased by the economic uncertainty resulting from the Covid-19 virus pandemic. Primarily, the pandemic affected the personal wealth of business angels. The fall of the stock market and economic uncertainty had a negative impact on the investments of business angels, i.e. a decrease in the investment activity of business angels were recorded (British Business Bank, 2020). Although business angels in the early stages of the pandemic continued to invest as before, in the fall of 2020 the situation changed significantly (Mason and Botelho, 2021). The coronavirus pandemic that began in early 2020 quickly raised concerns that economic uncertainty would lead to a breakdown in angel investment. Taking into account the key role that business angels play in financing, especially start-ups (Deffains-Crapsky and Klein, 2016, Mason et al, 2022, NACO, 2021), a drop in their investment activity would have a negative effect on the ability of entrepreneurs to launch and start the scaling process, which in turn would jeopardize the economic recovery from the coronavirus pandemic, which is largely dependent on entrepreneurs.

According to previous mentioned, this paper aims to show how covid 19 crisis affected the business angel market and their investments.

The paper consists of five parts. After the introductory part, the European business angel market is explained. The third part is related to the theoretical overview of Covid 19 on business angels. The fourth part presents the empirical analysis and conclusion is given in the fifth part of the paper.

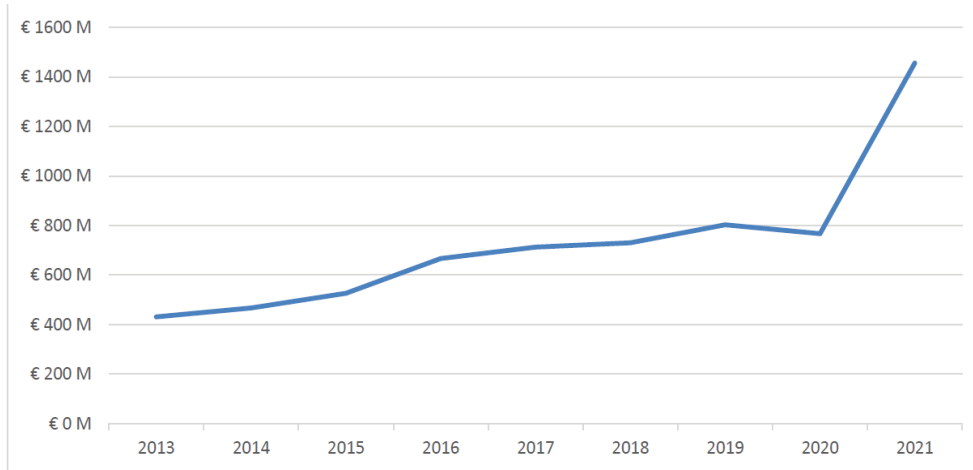
2. The European business angel market

Business angel market is very specific. Since most of the investments are made privately and only a small part via business angels' networks, the size of the total market is estimated. Namely, private investments cannot be measured. Therefore, the part of the market that can be measured, which refers to investments through networks for which there are data, is called the visible market of business angels. It makes up 10% of the total market, while the rest of the market is made up of private investments by business angels, which are immeasurable, and that part of the market is called the invisible market of business angels. They are estimated based on the visible market. According to the data in figure 1, it is visible that the value of business angels investments recorded constant growth from 2013 till 2019. From 2019 to 2020, there is a decline in investment, followed by a drastic increase in investment in 2021. In 2021, record investments of 1,45 billion euros were realized in Europe. The increase of the investments in 2021 according to 2020 is the result of many factors like (EBAN, 2022):

- access to angel data is improving,
- many of new investors joined the networks and they made their first investments through them,

- syndication between businesses angels and primary venture capitalists resulted in the increase amount of business angels' investments in the first phases,
- improvement of business angel networks services, dealflow and syndication.

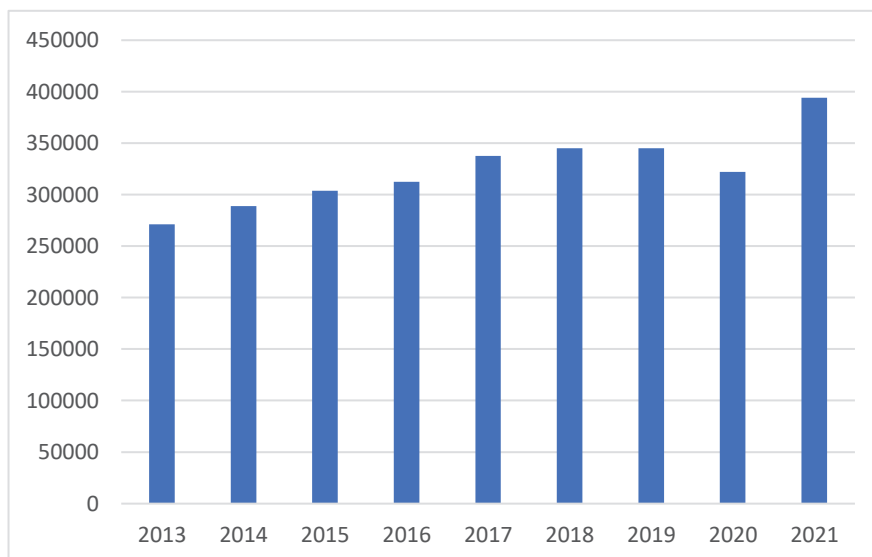
Figure 1: Angel visible market in European (in current prices)



Source: EBAN 2022

Looking at the figure 2 it can be seen that the number of business angels in Europe recorded a constant grow from 2013 till 2021, with a slight decrease of the number of angels in 2020. In 2021 the number of business angels in Europe is almost 300 000.

Figure 2: Number of business angels in Europe in the period from 2013-2021. years

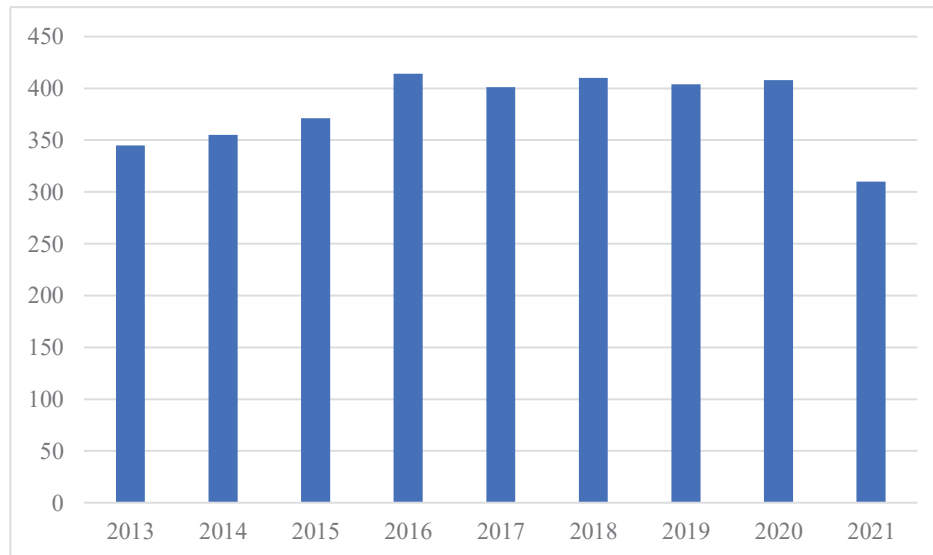


Source: Statista Research Department (2020): Number of business angels in Europe 2014-2019

The largest number of business angels operate in the invisible market, which is why their identification is extremely difficult. It is a relatively big challenge to find angel investors because one of their characteristics is that they like to be anonymous. So, most of the business angels in the market are invisible. In such circumstances, the best way to find them is to go to

the network of business angel investors. Networks of business angels are more visible than individual business angels and thus represent a channel that facilitates access to entrepreneurs, helping investors to diversify their investments (Lahovnik, 2018). The number of business angel networks in Europe from 2013 to 2021 varies, ranging between 310 and 410 networks, In 2021, the lowest number of networks is recorded.

Figure 3: Number of active business angels' networks in Europe



Source: author according to STATISTA and EBAN (2021)

According to EBAN (2021) the business angel market in Europe in the last few years is also growing in the total amount invested, the number of deals done as well as the number of business angels.

According to Mason et al (2022) the European venture capital and business angel markets are relatively under- developed. Furthermore, in relation to the American market, it is not deep and it is fragmented due to twenty-eight different markets with its own rules. According to EBAN (2022) the size of business angel investment market in Europe in 2021 is 1,45 billion euros, whereby the value of the market in US is estimated at 29.1 billion US dollars (Sohl, 2022).

3. Covid 19 and business angel theoretical review

With the beginning of the pandemic caused by the Covid-19 virus and its spread around the world, there was a concern and economic uncertainty in all economic sectors, including future investments by business angels (Mason and Botelho, 2021). Namely, many investors faced with many market changes because of the uncertainty of the covid 19 and the slowing down of the economy (Bellucci et al, 2023). Given that business angels play a significant role in investing and starting new businesses and ideas, a drop in their investment activity would have a negative impact on entrepreneurial ventures and activities. The fact is that innovative and ambitious start-ups play one of the key roles for economic recovery from the crisis caused by the Covid-19 pandemic. This type of business is recognized as a fundamental source of employment for highly educated personnel, a source of innovation and productivity.

Business angel investments are inherently high risk and more than half of all investments result in failure. This risk has been magnified with the economic uncertainty that has resulted from the restrictions and bans that have been implemented worldwide since March 2020, with the aim of controlling the Covid-19 pandemic. Covid-19 has led to numerous business challenges in investments (investment preferences, investment criteria and investment processes (NACO, 2022)), influenced numerous factors, and created uncertainty. Many investors (both business angels and other forms of investors) withdraw their investments because they wanted to avoid unnecessary risk. When the pandemic hit, many business angels focused on helping companies they had already invested in, because they were concerned that the companies in which they invested wouldn't have enough financial resources and therefore would not be able to finance their ongoing operations. Due to that, they had much less space and money to help and invest in new entrepreneurs and new business ventures (Mason, 2022b). The crisis caused by the Covid-19 virus has worsened the cash flow position of many companies, and sales of their products have decreased. A survey conducted by the European Network of Business Angels showed that 44% of their portfolio companies were negatively affected by Covid-19. Therefore, many business angels had to choose which portfolio companies to support with follow-on financing, and those were mostly companies that had prospered independently of the crisis, especially those that generated revenue. Also, since the start of the Covid-19 pandemic (British Business Bank, 2020), business angels have engaged more selectively in their portfolio companies, primarily supporting those companies that needed support to achieve their growth milestones. In some cases, they also supported those who needed help to survive (Mason and Botelho, 2021). Furthermore, since the beginning of the Covid-19 pandemic, business angels have focused more on companies led by experienced managers and management teams and companies that could generate income. The biggest change in business angel investing during the pandemic was a reduction in the amount of investment, but there were also changes in the investment strategy of business angels. On average, 7 out of 10 business angels have slowed their investment pace due to the pandemic (EIF, 2021). Although, according to Arundale and Mason (2020) certain business angels continued to invest in start-ups during Covid-19 crisis, namely 51% in new ventures and 16% in existing portfolio.

Like the rest of the business world, business angels also faced numerous challenges and started working remotely, holding virtual meetings from home, which made the learning process somewhat difficult and forced business angels to make decisions remotely. For business angels this way of undertaking decisions is quite challenging. Considering that non-verbal communication is important for the investment decision of business angels, primarily gestures and facial expression, online pitches using Zoom, Microsoft Teams, Slack and Skype, limited the decision-making process (Mason, 2022b). On the other hand, it opened the door to other options, because the geographic location of the business angel was no longer important (The Business Finance Guide, 2020).

The source of uncertainty was the possible impact of the Covid-19 crisis on their own wealth. i.e. there was a concern that business angels would experience a decline in net worth, as a result in financial market drop, which would further reduce new investments (Mason, 2020).

The American markets recorded a steep decline in March 2020, but already after a few months of the initial shock - they recovered, ending 2020 with more business angel investments than at the beginning of the same year. Taking into account the discretionary nature of investing in start-ups (business angels mostly invest between 5 and 15% of their financial assets in a start-up or business idea), the fall in the stock market, coupled with uncertainty about the impact of the pandemic, led to a pause in investment activity of certain business angels. Furthermore, according to the British Business Bank in the fall of 2020

showed that the impact of economic uncertainty on the personal investment ability of business angels is the key reason why they have reduced their investment activity. Nevertheless, business angels continued to invest even during the early phase of the pandemic. A survey conducted in the UK during May 2020 of more than 250 business angels shows that only one third of UK business angels did not invest during the period of isolation, with 71% of these angels continuing to review deals and only 29% had no plans to invest at all (Mason and Botelho, 2021.). Although there was a significant improvement in business angel investment in October 2020, it remained lower than that of February 2020. In the US, the Angel Capital Association reported that interest among business angel groups remained strong, with greater willingness to invest in September 2020 compared to April 2020. Furthermore, a source of uncertainty for business angels during the Covid-19 pandemic was the effect of the emerging crisis on their existing investments. There was a fear that the companies in which the business angels invested could run out of finance and that they would not be able to finance their current operations. Typically, investments are phased in, giving companies 12 to 18 months of cash, after which they will raise a further round of funding at a new valuation. Business angel portfolios therefore likely included some companies whose previous funding round was more than a year before the crisis and were therefore nearing the end of their financial journey. The Covid-19 crisis has worsened the cash flow position of many of these companies (PwC , 2020).

According to NACO (2021) 24 out of 29 active angel organizations in Canada made investments in 2020. The total amount invested as well as the size of investments decreased in 2020 versus to 2019, but the number of investments were higher for 39%. Taking into account 17 angel organizations, who provided answers in 2019 and 2020, it is visible how they made twice as many investments in 2020 vs. 2019. It has led to growth of average investments, but decline in total amount of investment for 8% as well as the decline in the mean size of investments. According to this data, Covid-19 did not have negative impact on business angel investing in Canada as it was expected in the first months of the crisis. Despite this, a negative impact of the crisis on investment activity, syndication, round size and investor confidence was recorded. Furthermore, as part of the investors did not want to invest without direct contact with the entrepreneur, this led to a smaller number of active investors as well as available capital for investment. The aforementioned led to a greater demand for capital by entrepreneurs compared to its supply.

Table 1 summarizes the main reasons of negative or positive impact of Covid-19 on business angels from UK. According to the research, two key negative influences are economic uncertainty that affected business angels own personal capacity (55%) and the lack of access to relevant investment opportunities (52%). On the other side, the two main positive impacts are the benefits from sectors in which business angels normally invest, but they benefited from Covid-19 (48%) and more allocation of personal annual wealth during this time (40%).

Table 1: Main reasons of negative or positive impact of Covid-19 on business angels

Main reasons of negative impact of Covid-19	Percentage	Main reasons of positive impact of Covid-19	Percentage
Economic uncertainty has affected my own personal investment capacity	55	The sectors/activities I normally invest in have benefited from Covid-19	48
Lack of access to relevant investment opportunities	52	I have allocated more of my personal annual wealth to invest during this time	40
Lack of co-investment available	18	Valuations have been lower	36

Main reasons of negative impact of Covid-19	Percentage	Main reasons of positive impact of Covid-19	Percentage
The sector(s) I normally invest in have been badly affected by Covid-19	12	There has been a strong flow of quality investment opportunities	24
Lack of access to relevant Government measures	9	I have identified additional sectors to invest in that have benefited from Covid-19	24
Lack of next stage investment	8	Strong levels of co-investment available	24
Inability to meet F2F/travel restrictions	6	I have successfully accessed relevant Government support measures	12
Reduced/conserving funds	5	More time to focus on investments	8

Source: British Business Bank, (2020)

During the pandemic, investments by business angels focused on healthcare, medicines, software and services, and FinTech. They had an increased interest in investing in Fintech, distance education, healthcare and medical equipment. The Covid-19 crisis has also prompted business angels to be more selective in which start-ups to invest in, with greater emphasis on length of financial journey, revenue generation, fixed income business models and strong balance sheets as investment criteria (Arneaud, 2021).

Although the emergence of the Covid-19 pandemic has raised concerns that there will be a collapse of business angel investment and that many early-stage companies will operate at a loss, evidence collected from a number of countries - including Scotland, Ireland, Canada and the USA - shows that angel investing was remarkably resilient to the crisis. Business angel investment declined in the second and third quarters of 2020, but recovered significantly during the fourth quarter of 2020 and 2021, when angel activity surpassed pre-Covid-19 investment levels. The key findings about the behavior of business angels during the pandemic are as follows (Mason, 2022a):

- with the advent of vaccines, confidence in business angel investments has also increased. With the emergence and spread of the pandemic, companies in the spring and summer of 2020 were not sure how the Covid-19 virus would affect their business, but already in the fall of the same year they got a clearer insight into the direction they could move in the future,
- Internet business, which was ubiquitous during the pandemic, also influenced business angels to find new companies in which they want to invest. This is how business angels and groups of business angels learned about the digital environment for communication with people, companies, etc., which they had not known before.
- the transition to digital business during the pandemic provided more opportunities for cooperation and additional investments; the geographical barriers that existed until then were removed, and business angels were enabled to expand their geographical range of investments to the most distant countries.

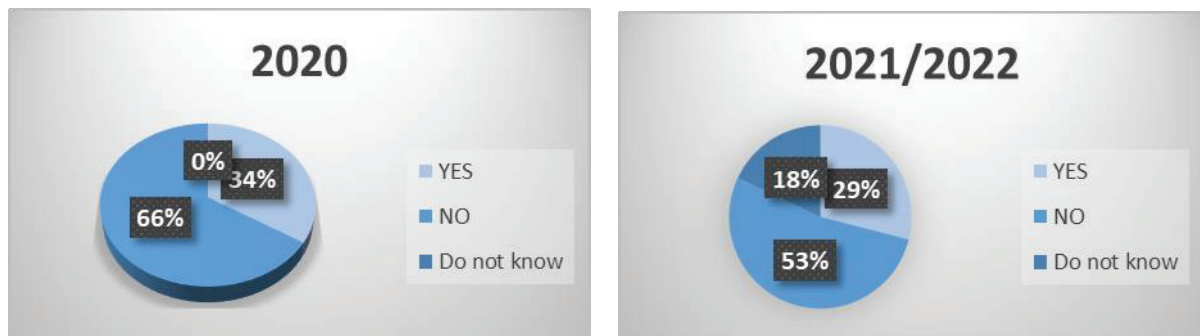
3. Empirical analysis

The empirical part of the paper is based on the comparison of European Investment Fund (EIF) business angel survey for 2020 and 2021/2022. In the surveys business angels have

been questioned, among other things, about the impact of the covid 19 crisis on the provision of additional capital to active portfolio companies, expectations related to their insolvency, and the impact of covid 19 on current and future performance of their portfolio companies.

According to the data in figure 4 it is visible how 34% of business angels provided additional capital to their portfolio companies in 2020 as a result of Covid 19, whereas they did not plan the same at the beginning of 2020. The survey for 2021/2022 shows how just 29% of business angels plan to provide additional capital to their portfolio companies til the end of 2022 as a result of Covid 19 crisis. From the data it is visible that securing additional capital from the business angels' side for their portfolio companies in 2021/2022 compared to 2020 was expected to decrease.

Figure 4: Additional investment due Covid-19

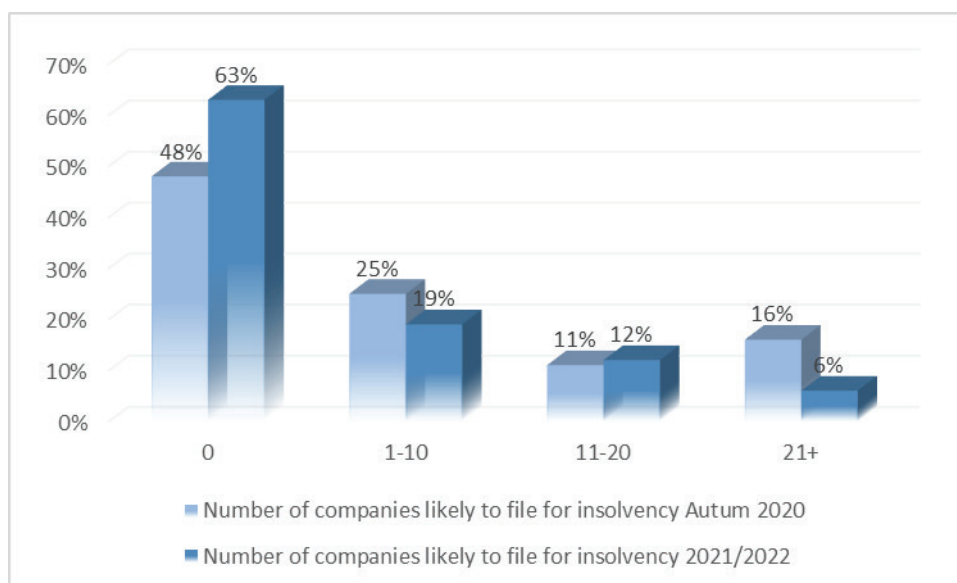


Provided additional investment to portfolio companies due to Covid 19

Are you planning to provide additional investment to portfolio companies due to Covid 19

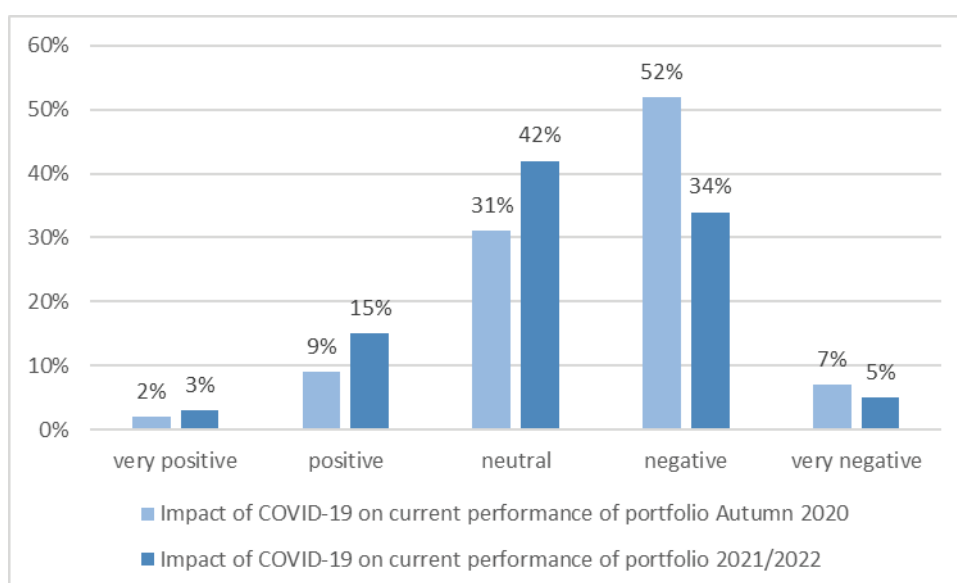
Source: authors' according to EIF business angel survey 2020 and 2021/2022

In 2020, the expected insolvency of its active portfolio companies by business angels investors were: 48% did not expect any problems with their active companies; 25% expected problems within 1-10 companies, 11% within 11-20 companies and 16% within more than 21 portfolio companies. Compared to 2020 in 2021/2022 63% business angels investors did not expect any problems with their active portfolio companies regarding file for insolvency. Just 19% expected that 1-10 of their companies would file for insolvency, whereby just 6% expect that more than 21 companies would do the same. Comparing data from 2021/2022 according to 2020 it can be concluded that the majority of business angels investors expects better solvency of its active portfolio companies.

Figure 5: Possible insolvencies due to Covid-19

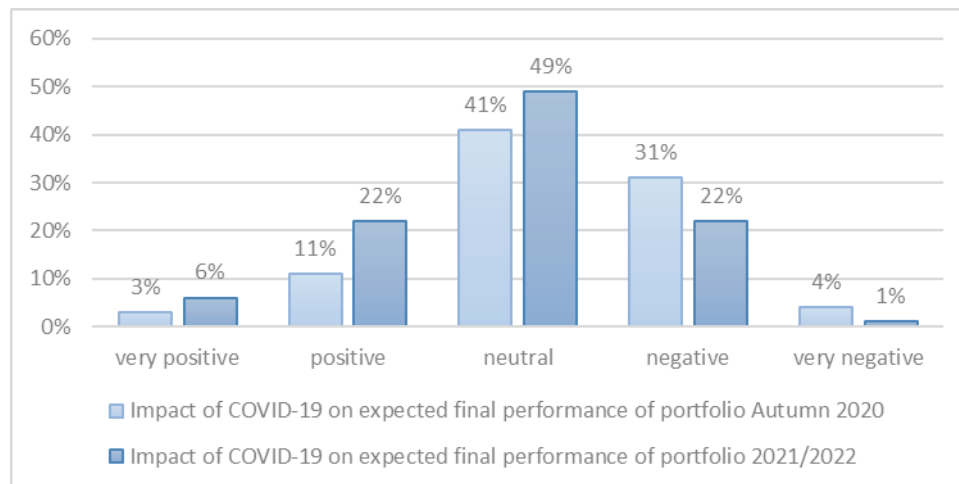
Source: authors' according to EIF business angel survey 2020 and 2021/2022

Looking for the data of the impact of Covid – 19 on current performance of portfolio companies (figure 6) its visible how 52% business angels investors saw a negative impact in 2020, whereby the negative impact in 2021/2022 were just 34%. Furthermore, in 2021/2022 the neutral effect is 42% compared to 31% in 2020. Comparing the data in can be concluded the business angels are more positive about the effect of Covid 19 on current portfolio companies in 2021/2022 than they were in 2020.

Figure 6: Impact of Covid-19 on current performance of portfolio

Source: authors' according to EIF business angel survey 2020 and 2021/2022

The impact of Covid 19 on expected final performance of portfolio companies (figure 7) is seen positive in 2021/2022 compared to 2020 (22% vs. 11%). As well, the negative and very negative impact decreased from 35% to 23% in 2020 regarding to 2021/2022.

Figure 7: Impact of Covid-19 on expected final performance of portfolio

Source: authors' according to EIF business angel survey 2020 and 2021/2022

4. Conclusion

Business angels are alternative sources of financing for companies, most often start-ups, and as such they are extremely important and form a large segment of venture capital investment in the earliest phase of business start-up. Business angels are mostly wealthy individuals with entrepreneurial experience, mostly male and middle-aged. They invest their own money in selected companies and thus contribute to the development of that company, but also to the overall economic and social development. Business angels are also called angel investors, which mostly get an ownership stake in that company for their investment. They can be active members of the company or act only as advisors. Most of the business angels also have an entrepreneurial and/or managerial experience. Money provided by business angels is considered "smart money", because in addition to financial investments, business angels provide the company with experience, knowledge, advice, and business contacts for the further operation of that company. Business angels decide to invest in order to achieve their own well-being, the well-being of the companies they invest in, and for the well-being of the world and the environment. Business angels join together in business angel networks, which are mostly neutral and established as non-profit enterprises. The advantages of business angel investment are mentioned as minimal paperwork, acceptable locations, and investment sectors, involved leadership and support, benefits for start-up financing. Disadvantages can be slow funding, limited leadership, and support, as well as limited control of the founders and that what is expected rapid growth of invested companies and rapid return of invested funds. Business angels usually act anonymously and are only visible in business angel networks.

The pandemic of the Covid-19 virus, which began in early 2020 has led to a collapse not only in the private sphere, but also in the business of companies around the world. Economic uncertainty was present in all business sectors and many world economies have still not recovered from the crisis. The pandemic has also caused changes in the investments of business angels around the world, changing the investment process, investment criteria and investment preferences. While some business angels did not even invest during 2020, others boldly invested in new business ventures. The focus of business angels primarily was on their existing portfolio companies. Although, the investments of business angels during the pandemic were not drastically reduced in the scope of investments, the amounts of money

they invested were reduced. Due to the crisis, they invested on average less per one investment. Business angel investment, as expected, decreased in the second and third quarters of 2020, but recovered significantly during the fourth quarter of 2020 and during 2021, when business angel activity surpassed pre-Covid-19 investment levels. The emergence of a vaccine against the coronavirus also had a positive effect on the investments of business angels. The decline in the amount invested could be linked to the decline in the net worth of business angels, because of the crisis and uncertainties. Furthermore, the pitch up of start-ups went online, which resulted that a part of business angels paused their investment activities. The face-to-face communication for them could not be replaced with the online one. The Covid - 19, also affected the change of operation of business angel organizations, who have also moved their activities online. Some of these activities are the conversation with entrepreneurs, investor training sessions as well as pitching events. Investors could be present live and/or watch the video afterwards. More and more business angels have focused their investment on online education, the healthcare sector, artificial intelligence, and the Internet of Things (IoT).

This research and its conclusions should also be viewed considering the limitations that existed during the analysis. The limitation of the research is primarily related to the lack of primary data. This issue could be addressed by providing own survey. Furthermore, future work could be concentrated on the impact of Covid-19 on business angels from the countries of Central Eastern Europe, due to the lack of research for this region. The same would enable the comparison of the obtained data with those of EIF, NACO and British Business Bank.

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A scientific paper

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ANALYSIS OF LIQUIDITY RISK AS A FACTOR OF BUSINESS SUCCESS OF MICRO, SMALL AND MEDIUM-SIZED ENTERPRISES IN THE REPUBLIC OF CROATIA

ABSTRACT

Settlement of financial obligations on time and timely collection of receivables are fundamental prerequisites for the liquidity and solvency of companies, as well as the development of entrepreneurship and the economy. By harmonizing the terms of collection of receivables and the terms of payment of liabilities, companies try to avoid a positive cash gap. Liquidity risk analysis for micro, small and medium-sized companies is an important factor in successful business. The analysis of liquidity risk by individual activities of the company provides information that enables more efficient management of the company to achieve profitability. Often, owners of micro, small and medium-sized enterprises are not aware of the importance of implementing financial and accounting analyzes as an important factor in achieving business success. A review of the available scientific and professional literature for the Republic of Croatia reveals the insufficiency of sources, which is also confirmed by the insufficient research on the mentioned topic. In accordance with the above, the aim of this paper is to prove the importance of liquidity risk analysis for achieving profitability of micro, small and medium-sized enterprises in the Republic of Croatia. This research will conduct a comparative analysis of the correlation and regression of liquidity risk factors and business performance indicators in order to prove that the continuous implementation of liquidity risk analysis is extremely important for the success of micro, small and medium-sized companies. The research is conducted on a sample of 254 micro, small and medium-sized Croatian companies. The scientific contribution of the work is to prove the connection between liquidity risk analysis and profitability of micro, small and medium-sized enterprises, which should cause greater interest of entrepreneurs in implementing liquidity risk analysis in practice.

Key words: *liquidity risks, cash flow, cash gap, performance indicators, micro enterprises, small and medium enterprises.*

1. Introduction

Most of the available research sources in the field of financial management are focused on the study of long-term financial and investment decisions, evaluation of investment profitability, capital structure, dividend policy, while decisions on working capital management are less represented in literature and scientific studies (Kumar et al, 2017; Mandipa & Sibindi, 2022). As in a large number of countries around the world, the sector of small and medium

enterprises in Croatia accounts for 99.7% of the total number of enterprises (Vinšalek Stipić, 2023; CEPOR 2021). Given that micro, small and medium-sized enterprises are considered drivers of economic development, more intensive research on this topic is necessary. The largest share of the funds of small and medium-sized enterprises is in the form of current assets, and current liabilities are one of the main sources of external financing of small and medium-sized enterprises. This empirical research is focused on the analysis of liquidity risk management by analyzing the cash flow and cash gap of micro, small and medium enterprises in the Republic of Croatia, as well as its impact on their financial performance. The aim of this paper is to prove the importance of implementing cash flow and cash gap analysis for achieving the financial performance of micro, small and medium-sized enterprises in the Republic of Croatia.

2. Theoretical determinants of liquidity risk management of micro, small and medium enterprises and previous research

The basic assumptions of the company's liquidity are the settlement of obligations within the due dates as well as the regular collection of receivables. The fundamental determinants of achieving liquidity are the regular collection of receivables for the purposes of regular settlement of overdue liabilities. Along with activity indicators, cash gap analysis is an extremely important indicator and controlling instrument for managing liquidity and working capital in the company. The cash gap shows the number of days in which the company does not have money as the most liquid form of assets for settling obligations to suppliers (Tušek et al., 2014). Liquidity risk management is carried out by regular analysis of cash inflows and outflows, compilation and analysis of cash flow reports. The statement of cash flows must show cash flows (cash receipts and cash expenditures) generated during the period, classified into cash flows from business, investment and financial activities (Arbanas et al., 2022). The classification of cash flows by individual activities provides users with information that enables them to assess the impact of individual activities on the company's financial position and the amount of its cash and cash equivalents (Bakran et al., 2021). The cash flow report enables the assessment of the business entity's ability to regularly and timely fulfill obligations, capital investments and identifies the need for external sources of financing (Pušar Banović, 2022). The importance of liquidity and cash flow analysis, especially cash flow from business activities, is emphasized by numerous authors (Bakran et al., 2021; Pušar Banović, 2022; Čeh Časni & Filić, 2019). Special emphasis is placed on the importance of liquidity risk management in business and reducing the cash gap to a minimum (Tušek et al., 2014). Liquidity is the ability of a company to meet its due obligations. If the formation of the balance of monetary receipts and expenditures is left to the elements, the company is on the verge of solvency, occasional or frequent insolvency of the company can be expected (Šverko Grdić et al, 2009). Liquidity of an entrepreneur is the ability of his non-monetary assets to be converted into cash in a relatively short period of time and without losses, respectively the ability of the company to settle its current liabilities (Anthony & Reece, 2004; Proklin & Zima, 2011). The emphasis is on the company's ability to manage other sources of financing (Tintor, 2009). It is precisely through the interpretation of the business cycle that the importance of all forms of short-term assets for the management of the cash gap and for the assessment of liquidity is highlighted (Žager & Ježovita, 2017). An increase in the money gap certainly indicates illiquidity. Therefore, it is necessary to reduce the cash gap as much as possible by reducing the days of collection of receivables from customers, reducing the days of inventory tying, and increasing the period of payment of obligations to suppliers (Tušek et al., 2014). The research carried out on 120 Croatian companies indicates the importance of

risk management in business, and the underdevelopment of risk and liquidity management systems for trades and simple limited liability companies. In the survey, 90% of the respondents answered that the system is completely or partially underdeveloped, and 74.7% of the respondents in the case of micro and small enterprises (Kereta, 2020). The economic crisis affects smaller companies more than large ones, they have difficult access to financing and insufficient analysis of financial statements in business decision-making. Financial statements in small and medium-sized enterprises are compiled for the needs of external users, while internal reports for decision-making and management purposes are underrepresented or absent at all (Dečman, 2012). A review of the available scientific and professional literature for the Republic of Croatia reveals the insufficiency of sources, which is also confirmed by the insufficient research on the mentioned topic. Therefore, the analysis of previous research in the world is approached. It should be emphasized that transaction costs have a significant impact on financial leverage adjustments and liquidity achievement (Faulkender et al., 2012), while cash flow analysis can provide opportunities for financial leverage adjustments. However, not implementing cash gap analysis is a strong signal of poor cash flow (Wadesango et al., 2019). Small and large companies apply different liquidity management policies even though they operate in the same industry and region. There is also an inverse relationship between the phenomenon of financial liquidity and the profitability of economic entities (Zimon et al., 2022). Research on Amman Stock Exchange companies showed that there is no relationship between all liquidity ratios and gross profit margin, while there is a weak positive relationship between current liquidity and operating profit margin and net profit margin, while there is a positive relationship between liquidity ratio and return on assets (Durrahl et al., 2016).

3. Methodology and research results

The impossibility of timely settlement of obligations and timely collection of receivables leads to major business problems for every company. In order to avoid the business risks of the company, the analysis of the cash flow and the cash gap to achieve liquidity is of particular importance. Due to the characteristics of micro, small and medium-sized enterprises and the conditions in which they operate, as well as the importance of analyzing cash flows and the cash gap, the goal of the research arises. The goal of the research is to prove the importance of liquidity risk management by conducting an analysis of cash flow and cash gap in micro, small and medium-sized enterprises in the Republic of Croatia and its impact on their success and business security. For the implementation of this research, a survey questionnaire was created on the implementation and importance of cash flow and cash gap analysis for micro, small and medium-sized enterprises in the Republic of Croatia, where it was desired to prove itself as a key factor for liquidity risk management and business success.

3.1. Subject and research hypotheses

Micro and small companies are particularly exposed to the risk of illiquidity and insolvency. They have a more difficult access to financing, it is more difficult to collect claims and in them the owner performs several functions and is often the only employee. Micro and small companies buy accounting services and most often do not have a controlling function in the company. They also do not have adequate knowledge to carry out different types of analyzes that are the basis for business decision-making.

The subject of the research work is to determine to what extent micro, small and medium-sized enterprises, as an important segment of the Croatian economy, perform the analysis of

cash flows and the cash gap in liquidity risk management and their importance for business success. Also, correlation and regression analysis was used to prove the impact of cash flow and cash gap analysis on the performance of micro, small and medium enterprises. In accordance with the above, the following hypotheses were set:

H1: Implementation of cash flow and cash gap analysis is a factor in the success of micro, small and medium enterprises

The following auxiliary hypotheses were defined from the main hypothesis:

H1-1: The implementation of cash flow and cash gap analysis is statistically significantly related to the creation of value added value of companies

H1-2: Implementation of cash flow and cash gap analysis is statistically significantly related to the ROS indicator for micro, small and medium enterprises

H1-3: The implementation of cash flow and cash gap analysis is statistically significantly related to the ROA indicator for micro, small and medium enterprises

H1-4: The implementation of cash flow and cash gap analysis is statistically significantly related to the ROE indicator for micro, small and medium enterprises

3.2. Methodology and sample of the research

The research described in this paper is based on empirical testing on a total sample of 254 respondents, of which there were 102 company owners, 40 directors/management, 50 managers/financial managers, 36 accountants/managers of accounting and finance in the company, and 26 accountants of accounting service, which provided answers for 78 micro enterprises, 90 small enterprises and 86 medium-sized enterprises. In accordance with the type of data that needed to be collected for the purposes of conducting this research, external (secondary) data, financial statements of the company for the business year 2021, and own (primary) data obtained from an anonymous survey questionnaire were used. The survey questionnaire was created for the independent variable CFA (Cash Flow Analysis), which was created by the authors for the purposes of this research using the Google Docs web tool, through which the survey questionnaires were sent to the e-mail addresses of potential respondents, as well as to several social and business networks in order to obtain a more representative sample. The companies to which the survey questionnaires were sent to e-mail addresses were obtained by random selection through the services of the Digital Chamber of the Republic of Croatia. Out of the total population of 76,637 micro enterprises, every thousand company was selected. Out of the total population of 7,312 small companies, every hundredth company was selected. From the total population of 749 medium-sized companies, every fiftieth company was selected. For the purposes of determining the representativeness of the sample, a calculator was used to calculate the sample size (available at the web address <https://www.surveymonkey.com/mp/sample-size-calculator/>) which was taken into account Confidence Level 95% and Margin of Error 10%. Accordingly, out of a population of 84,698 micro, small and medium-sized enterprises, 254 valid survey questionnaires were obtained and it is concluded that the sample is representative. The survey was conducted in June and July 2022. Survey questions were in form of statements valuated with Likert 5-point scale: 1 – I absolutely disagree; 2 – I do not agree; 3 – I neither agree nor disagree; 4 – I agree; 5 – I absolutely agree. For certain questions, the following scale of intensity was used: 1 – we do not implement at all; 2 – once a year; 3 – half-yearly; 4 – quarterly; 5 – once a month (or daily

for analysis of cash gap and control of receivables collection). The validity of the applied questionnaire was checked using the Cronbach alpha coefficient, which is shown in table 2 in the research results. To test the hypotheses, the research data were processed in the statistical program SPSS Statistics 26.0., using Pearson's regression analysis. A simple regression analysis model was used to analyze the relationship between CFA and one variable, and a multiple regression analysis was used for a group multivariate analysis that analyzed the relationship with four dependent variables.

The following variables were defined in this research:

- a) CFA independent variable – Cash flow and cash gap analysis => this variable was obtained from the survey questionnaire from a series of questions about the compilation and implementation of the cash flow and cash gap analysis. The variable was obtained as a weighted average number of responses from the survey questionnaire, measured by the already explained Likert scale. The CFA variable was formed from answers to questions about: the development of the liquidity risk management system; frequency of cash flow analysis; frequency of analysis of indicators of cash flow, liquidity and solvency; the frequency of debt collection control; implementation of analysis of cash gap and customers' creditworthiness; cash flow analysis before buying on credit.
- b) Dependent variable – Business performance measured by indicators VA – Value Added of companies; ROS – Return On Sales; ROA – Return On Assets; ROE – Return On Equity => this variable was obtained from the financial statements for 2021 of micro, small and medium-sized Croatian companies for which the respondents answered in the survey questionnaire.

In an anonymous survey, the respondents gave answers for their companies, then the indicators Added value, ROS, ROA and ROE were calculated for these same companies from their financial statements downloaded from the portal of the Digital Chamber of the Republic of Croatia (available at: <https://digitalnakomora.hr/home>).

3.3. Results of the research

In order to fulfill the assumptions of data analysis for this research, descriptive statistics of all variables were first made, which is shown in table 1. In the presentation of descriptive statistics, the basic statistical values for each variable are shown, from which it is evident that 254 respondents filled out the questionnaire about the implementation of the analysis cash flow and cash gap for their companies for which they gave valid answers. The previously defined performance indicators for the companies included in this research were also calculated for the sample number shown. No missing values were recorded.

Table 1: Display of output results of descriptive statistics

		Statistics				
		CFA	VA	ROS	ROA	ROE
N	Valid	254	254	254	254	254
	Missing	0	0	0	0	0
Mean		2,5978	,3662	2,5808	2,3376	3,6519
Std. Error of Mean		,05479	,13782	,26695	,22701	,35928
Median		2,7100	,3500	2,4100	3,1500	3,4750

Statistics						
		CFA	VA	ROS	ROA	ROE
Mode		1,29	,33	2,41 ^a	3,52 ^a	1,49
Std. Deviation		,87327	2,19652	4,25452	3,61786	5,72596
Variance		,763	4,825	18,101	13,089	32,787
Range		3,43	26,22	31,56	24,54	60,83
Minimum		1,14	-7,22	-17,02	-15,20	-13,47
Maximum		4,57	19,00	14,54	9,34	47,36
Sum		659,84	93,02	655,52	593,76	927,58
Percentiles	25	2,0000	,1600	,8400	1,2575	1,4900
	50	2,7100	,3500	2,4100	3,1500	3,4750
	75	3,2900	,5700	5,0100	4,3200	5,7725

a. Multiple modes exist. The smallest value is shown

Source: Authors

After descriptive statistics, the Cronbach alpha coefficient was calculated in order to eliminate the problem of consistency and reliability of the measuring instrument, which is shown in table 2. The obtained value of the Cronbach alpha coefficient shows acceptable reliability and good internal consistency of the measuring instrument.

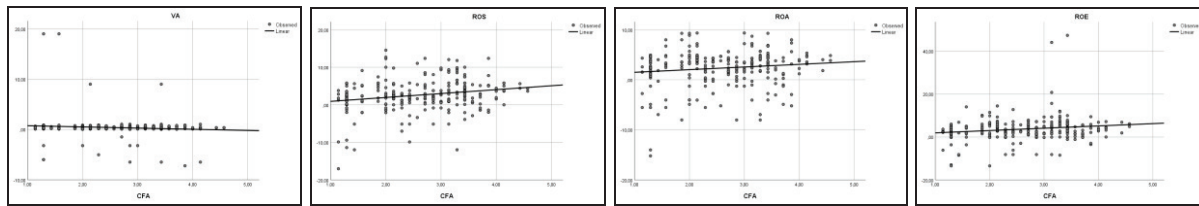
Table 2: Cronbach alpha coefficient of the measuring instrument

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,846	,842	7

Source: Authors

Transformation of performance indicators (VA, ROS, ROA, ROE) was not carried out because there is no problem of normality, the obtained values in the analyzed interval are not countable as a whole number, they were obtained by calculations from the company's financial statements. There is a normal distribution of roundness for SPSS software while the scatter plots are shown below. From the graphic representation of the possible linear and non-linear connection, a small positive linear connection between the observed variables of this research is visible.

Figure 1: Graphic representation of the linear connection of cash flow and cash gap analysis (CFA) with performance indicators (VA, ROS, ROA, ROE)



Source: Authors

As all the previously stated assumptions were met, the implementation of the multiple regression model, which is shown in table 3, was implemented. As in the implementation of statistical research there are numerous proposals for determining the limits based on which the strength of the connection between variables is interpreted, the following guidelines were applied in the implementation of this research: strong association from 0.5 to 1; moderate association from 0.3 to 0.49; and weak correlation from 0.1 to 0.29 (Horvat & Mioč, 2019).

Table 3: Multiple regression model of CFA and performance indicators

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,440 ^a	,258	,243	,85445	,058	38,178	4	249	,000	2,235
a. Predictor: (Constant), CFA										
b. Dependent Variable: VA, ROS, ROA, ROE										

Source: Authors

The analysis of the multiple regression model (for four profitability indicators, i.e. four variables) for hypothesis H1 from the correlation coefficient (0.440) shows that the implementation of cash flow and cash gap analysis is moderately positively related to the performance of micro, small and medium-sized Croatian companies. With the appropriate level of significance ($r = 0.440$; $p < 0.001$) from the coefficient of determination it is evident that 25.8% of observations show a statistical connection between variations in business success and the result of variations in the independent variable. Durbin-Watson has a value of 2, which indicates no autocorrelation of relational errors.

Table 4: Overview of output results of multiple regression analysis

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	118,146	4	2,786	38,178	,000 ^b
	Residual	181,793	249	,730		
	Total	192,938	253			
a. Predictor: (Constant), CFA						
b. Dependent Variable: VA, ROS, ROA, ROE						

Source: Authors

According to Table 4, ANOVA and F-ratio with the number of degrees of freedom confirm that there is a statistically significant contribution that the independent variable predicts business performance ($F_{4, 249} = 38.178$; Sig. < 0.001). From the obtained F ratio for the presented multiple regression model, it does not mean that all variables significantly contribute to the explanation of the variations of the regression model. The above is shown below in the table of coefficients of the regression model.

Table 5: Coefficients (estimated parameters) of the regression model

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2,485	,068		-16,788	,000
	VA	,135	,025	,088	1,422	,000
	ROS	,240	,018	,193	2,208	,000
	ROA	,049	,021	,038	1,446	,000
	ROE	,012	,011	,081	1,071	,000

Source: Authors

Table 5 shows ($a = -2.485$; performance indicators = 0; $p < 0.001$) that when companies do not perform cash flow and cash gap analysis, they do not achieve financial performance. The standard coefficient was further analyzed because the independent and dependent variables were obtained from different measurement scales, the performance indicators (VA, ROS, ROA, ROE) were obtained from the company's financial statements, while the CFA variable was obtained using an interval scale from the survey questionnaire. Furthermore, β shows a positive direction of the regression line for performance indicators, while a statistically significant contribution to the regression model is determined for the independent variable CFA ($t = 1.422$; $t = 2.208$; $T 0 1.446$; $t = 1.071$; $p < 0.001$).

The overall analysis of the CFA regression model and performance indicators (VA, ROS, ROA, ROE) shows that the analysis of cash flow and cash gap is significantly statistically related to the successful operation of companies, thus confirming the first scientific hypothesis H1 – Implementation of cash flow and cash gap analysis is a factor in the success of micro, small and medium enterprises.

Table 6: Single regression model of CFA and VA

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,293 ^a	,109	,105	,87120	,009	22,202	1	252	,000	2,095
a. Predictor: (Constant), CFA										
b. Dependent Variable: VA										

Source: Authors

Hypothesis H1-2 was proven using a regression model to examine the connection between conducting cash flow analysis and the cash gap with the Value Added of companies - VA indicators, which is shown in Table 6. The correlation coefficient (0.293) shows that there is a weak positive connection between the variables CFA and VA. The coefficient of

determination is close to zero, so we cannot talk about good representativeness of the model, that is, this significant statistical connection is shown by 10.9% of variations in the dependent variable with the result of variations in the independent variable. Durbin-Watson has a value of 2, which indicates no autocorrelation of relational errors. With the determined level of significance $p < 0.001$, which is lower than the default 0.05, and the number of degrees of freedom ($F_{1, 252} = 22,202$), the significance of the regression model is visible.

Table 7: Regression model of CFA and ROS

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,413 ^a	,209	,205	,87120	,009	22,202	1	252	,001	1,851
a. Predictor: (Constant), CFA										
b. Dependent Variable: ROS										

Source: Authors

From the specified regression model in Table 7, a positive and significantly moderate correlation is visible from the correlation coefficient (0.413), with a determination coefficient (0.209) with a significance level of $p < 0.001$. Durbin-Watson (1.851) shows the non-existence of autocorrelation of relational errors. The analysis of the regression model from the F ratio, with the number of degrees of freedom (1.252) and the corresponding level of significance, confirms that there is a statistical significance of the implementation of the cash flow and cash gap analysis with the Return On Sales indicator.

Table 8: Regression model of CFA and ROA

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,128 ^a	,016	,012	3,59537	,016	4,176	1	252	,001	1,871
a. Predictor: (Constant), CFA										
b. Dependent Variable: ROA										

Source: Authors

The results of the regression model for proving hypotheses H1-3 are shown in table 8, which shows a weak positive connection between CFA and the ROA indicator, with a correlation coefficient of 0.128. The coefficient of determination is close to zero, so the representativeness of the model is not good. Durbin-Watson has a value closer to 2, which indicates the absence of autocorrelation of relational errors. From the variance analysis of the regression model on the existence or non-existence of differences between the population averages, with the established significance level $p < 0.001$ which is lower than the default 0.05 and the number of degrees of freedom ($F_{1, 252} = 4.176$), the regression model is not statistically significant. The obtained results did not confirm the third auxiliary hypothesis.

Table 9: Regression model of CFA and ROE

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,164 ^a	,027	,023	5,65995	,027	6,936	1	252	,009	1,823
a. Predictor: (Constant), CFA										
b. Dependent Variable: ROE										

Source: Authors

The regression model for proving the fourth auxiliary hypothesis shows a weak positive connection between the analysis of cash flow and the cash gap with the Return On Equity - ROE indicator, which is evident from the correlation coefficient R in table 6. The coefficient of determination is close to zero, so one cannot speak of a good representativeness of the model. Durbin-Watson has a value closer to 2, which indicates the absence of autocorrelation of relational errors. With the determined level of significance $p < 0.001$, which is lower than the default 0.05 and the number of degrees of freedom, the weak statistical significance of the regression model is visible.

In business decision-making in the majority of micro, small and medium-sized companies in the Republic of Croatia surveyed by this research, insufficient knowledge of the topic, method, frequency of implementation and importance of cash flow and cash gap analysis was observed, first of all by the company owner, which needs to be investigated in more detail in future research. The same is partly a consequence of the fact that in micro, small and medium-sized enterprises the owner often performs several functions in the company and that micro and small enterprises most often buy services from accounting services, which mainly perform tasks related to the legally prescribed obligations of the company, and have less of an advisory role in making business decisions of company owners. Awareness of the importance of these analyzes was also observed among a large number of respondents. Insufficient use of cash flow analysis was observed when approving loan payments. Lack of time, staff and knowledge or their combination, with the opinion that cash flow analysis and cash gap analysis have no impact on the company's business conditions. Because of the above, it was observed that a large number of companies included in this research do not sufficiently analyze the cash flow, cash gap and cash equivalents. Most of the companies surveyed in the last three years had problems with the collection of receivables and payment of liabilities, but they also expect problems with liquidity in future business activities. From the above, it can be concluded that cash flow analysis and cash gap analysis are one of the most important tools when making business decisions, when choosing business partners, when deciding on investments and when choosing terms and methods of collecting claims and settling liabilities in micro, small and medium-sized enterprises. All of the above should be the basis for future research and education, the creation of incentive measures, the formation of educational programs and the creation of entrepreneurial advisory support and economic policies.

4. Conclusion

The implementation of cash flow and cash gap analysis as a liquidity risk management measure is considered necessary for successful business enterprises. The analysis of cash flow and cash balance enables the display of funds available to the company at a certain moment

for the timely settlement of due obligations and enables the planning of cash inflows and outflows in a certain period of time. The above is extremely important and it is recommended to carry out the aforementioned analysis frequently. The analysis of cash and cash equivalents enables the management of the risk of liquidity and insolvency in the company, as well as the planning and reduction of business financing costs. By conducting empirical research, a survey on a sample of 254 respondents, who gave approval for micro, small and medium-sized enterprises, the aim was to prove to what extent the implementation of cash flow and cash gap analysis is related to the successful operation of micro, small and medium-sized Croatian enterprises. The research results, statistical data processing, and multiple regression model led to the conclusion that the implementation of the analysis of cash flow and cash gap are positively related to the successful operations of micro, small and medium-sized Croatian companies (0.440). Individual regression models for the defined performance indicators Value Added of Companies, Return On Sales, Return On Assets, Return On Equity, it is concluded that they are moderately to weakly statistically related to the implementation of cash flow and cash gap analysis for micro, small and medium-sized Croatian companies, with correlation coefficients CFA and VA 0.293, CFA and ROS 0.413, CFA and ROA 0.128, and CFA and ROE 0.164.

Regardless of the obtained research results, it cannot be concluded that the analysis of cash flow and cash gap is not necessary for the successful operation of the companies. The above is very necessary for defining a business strategy, making decisions about financing, choosing business partners so that companies do not end up in problems of illiquidity and insolvency.

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THE INFLUENCE OF THE INTERNAL QUALITY SYSTEM ON THE EXTERNAL QUALITY ASSESSMENT OF HIGHER EDUCATION INSTITUTIONS IN CROATIA

ABSTRACT

Ensuring the quality of higher education is imperative for a modern knowledge-based society. The internal quality assurance system is expected to improve all aspects of institutional activity in accordance with its learning and teaching mission. This paper analyses the results of the re-accreditation of Croatian higher education institutions with the aim to research the link between the quality level of the internal quality assurance system and the quality level of other evaluation areas (1. internal quality assurance and the social role of higher education institutions; 2. study programmes; 3. teaching process and student support; 4. teaching and institutional capacities; 5. professional/scientific/artistic activities). To achieve the research goal and confirm the main hypothesis of the paper, the results of the re-accreditation procedures of Croatian higher education institutions in the second cycle were taken, and specific statistical tests were performed: Spearman correlation test, Kruskal-Wallis test and Dunn's test. The results prove the existence of a correlation between the development of the internal quality assurance system and the external quality assessment in all areas of evaluation. The implementation of a high-quality and comprehensive internal quality system can improve the quality of all areas of higher education and therefore higher education as a whole.

Key words: Croatia, higher education, quality, ESG, re-accreditation.

1. Introduction

The most important factor in economic success is human capital, i.e. the knowledge, skills, independence and responsibility possessed by individuals. Developed world economies have long seen that the quality of the education systems significantly affects the economic development of a country. Higher education represents the highest level of formal education, so knowledge-based economies focus on the continuous development and improvement of this system. The role of higher education in today's global economic environment is multifaceted. Higher education institutions (HEIs) should prepare students for the labour market, which is continually shifting due to constant global changes and innovative processes. To offer quality

support to the industry and businesses in general, HEIs should ensure the achievement of relevant knowledge and adequate skills that will improve the social cohesion (involvement) of the population and enable the country's economic progress. Modern HEIs should be the drivers of innovation and new technologies. The above-mentioned imperatives, along with the growing internationalisation of HEIs, strengthen the need for quality education and thus ensure the quality of higher education.

Quality assurance is a collective process by which HEIs ensure compliance of the educational process quality with the given standards (Wilger, 1997). Quality assurance activities have a dual purpose - *accountability and improvement* (ENQA, 2015). A successfully implemented quality assurance system provides information to all stakeholders about the quality of HEI's work (responsibility), and advice and recommendations on how that work can be improved (improvement). The HEI quality evaluation as a whole or evaluation of an individual programme carried out by an accreditation body to formally determine compliance with the minimum criteria or standards is called accreditation (Vlăscenau et al., 2007). The result of the accreditation process is usually an award of temporary status or a decision (yes or no) on a licence to work. Accreditation agencies develop quality standards and procedures used to instruct HEIs to continuously improve all activities to ensure the quality of the educational process. Expert committees base their decision-making and recommendations for improvement on the above standards.

In the European Higher Education Area (EHEA), the Bologna process particularly emphasises quality assurance. To promote the employment of European citizens and the international competitiveness of the EHEA, and to encourage mobility by overcoming obstacles to free movement, this process promotes European cooperation in the development of comparable criteria and methodologies for quality assurance of the higher education system (The Bologna Declaration, 1999). The European Association for Quality Assurance in Higher Education (ENQA) in cooperation with the European Students' Union (ESU), the European University Association (EUA), and the European Association of Institutions in Higher Education (EURASHE) created a set of common standards, procedures and guidelines for quality assurance in higher education published in the document *Standards and guidelines for quality assurance in the European Higher Education Area (ESG)* (ENQA, 2005). The standards were revised in 2014 and adopted by the EHEA ministers in 2015. The document content is sufficiently broad, which enables its use at the national level by all signatory countries of the Bologna Declaration, regardless of cultural and historical heritage, adopted legal framework, etc. The aforementioned Standards and guidelines cover three main areas of the quality assurance system: (1) internal quality assurance; (2) external quality assurance, and (3) external quality assurance agencies. Their purpose is to create a common framework of the "quality assurance system at the European, national and institutional levels and to enable the assurance and improvement of the quality of higher education. The standards aim to foster mutual trust and provide information on quality assurance in the EHEA" (ENQA, 2015).

In accordance with ESG (ENQA, 2015), HEIs are primarily responsible for the quality of their own work and its assurance. HEIs, therefore develop their own quality assurance models in accordance with ESG, national standards, strategic documents, and other organisational specifics. For the model to be successful and ensure the quality of the work of the entire institution, it is important to include all areas of activity in accordance with the mission, vision, and strategy of the institution and to include different stakeholders in its creation, implementation and evaluation. According to Budimir (2020), "a well-established internal quality assurance system that enables continuous implementation, supervision and evaluation

of all activities of the institution contributes to the quality of the higher education institution and higher education as a whole.” In the re-accreditation process, the accreditation body performs the external evaluation of the quality of the institution's work in accordance with defined standards. Considering the clear connection between internal and external quality assurance, and since no similar studies were found in the literature, this study investigates whether there is a link (correlation) between the quality level of the internal quality assurance system and the quality level of other evaluation areas in the re-accreditation procedures of HEIs in Croatia. The main hypothesis of the paper is that a well-established internal quality assurance system ensures the quality of all areas of the institution.

This paper consists of five structurally connected parts. After the introduction, the second chapter explains the quality assurance of HEIs in Croatia, internal systems, and external assessment. The third chapter presents the research methodology, and the fourth presents the results of the conducted research. The fifth chapter offers a discussion of the results, recommendations for improvement and conclusions.

2. Ensuring the quality of higher education institutions in Croatia

The Bologna Process encourages HEIs in the EHEA to promote the transparency and accreditation of study programmes. External quality evaluation starts with the expectation at the national level that institutions will develop independent internal processes that lead to quality improvement (Kristensen, 2010). “Higher education institutions are expected to develop a culture of quality that contributes to the realisation of the vision development and better recognition at the national and international level” (Legčević & Hećimović, 2016). The aforementioned trends have increased interest in the development of internal quality assurance systems of HEIs to support external evaluation processes and meet defined standards and criteria (Huet et al., 2011).

Higher education in Croatia includes undergraduate, graduate and postgraduate levels in accordance with the Bologna system. According to data from the MOZVAG system (ASHE, 2022a), 131 higher education institutions in Croatia offer 1,667 study programmes. By signing the Bologna Declaration in 2001, Croatia undertook the promotion of European cooperation in quality assurance with the aim of developing comparable criteria and methodologies. The quality assurance systems of HEIs in Croatia are organised in accordance with ESG. Education and science are closely related, and the primary responsibility for the quality of higher education and science at higher education institutions lies with the institutions themselves. The fundamental act, which regulates quality assurance and improvement in science and higher education, is the Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09).

HEIs in Croatia should establish an internal system for quality assurance and improvement in accordance with the Act (Official Gazette 45/09, Article 18.). Each institution regulates its internal system by its general act. The internal system includes measures and activities by which HEI ensures its responsibility for the efficiency and achievement of quality outcomes of educational and scientific activities (Act, 45/09, Article 2). The following is important for establishing a functional internal quality assurance system (ASHE, 2019):

- The internal quality assurance system encompasses the entire work of the HEI and all its activities (study programmes, teaching process, student support from different

groups, learning resources, professional/scientific/artistic activity, international cooperation, etc.).

- The HEI adopts a quality policy as a part of strategic management. The policy is enacted through action plans with measurable indicators of success, monitoring of implementation, and reporting that contains an analysis of success, an assessment of effectiveness and proposals for improvement.
- All plans, activities, processes, resources and results are documented and available for effective management and improvement of all activities and further development.
- The HEI uses different methods to collect information about the quality of all its activities (student surveys about teaching and studies, collaborative evaluation, feedback from graduates and employers, etc.) and performance indicators (e.g. pass analysis, graduate employment, dropout rates, etc.), and uses them to ensure and improve quality and inform the community.
- All stakeholders (employees, students, entrepreneurs, local community, vocational and professional associations, and alumni) are actively involved in the internal quality assurance system.
- The HEI is dedicated to management development, teaching/scientific/artistic, administrative, professional, and technical potentials in accordance with the principles and standards of the profession.

Each HEI aligns its internal quality assurance system with ESG, which in its Part 1: Standards and guidelines for internal quality assurance, includes (ENQA, 2015):

- “1.1. Policy for quality assurance
- 1.2. Design and approval of programmes
- 1.3. Student-centred learning, teaching and assessment
- 1.4. Student admission, progression, recognition and certification
- 1.5. Teaching staff
- 1.6. Learning resources and student support
- 1.7. Information management
- 1.8. Public information
- 1.9. Ongoing monitoring and periodic review of programmes
- 1.10. Cyclical external quality assurance”

Through an internal quality system, HEIs accomplish their vision and mission. To accomplish the vision and mission, and meet the user needs, HEIs develop mechanisms and procedures that they use for planning, implementing and controlling various activities (Daromes & Ng, 2015).

The fundamental processes by which HEI ensures quality are:

- a) Planning – plans of measures and activities for the implementation and improvement of the quality assurance system, action plans, financial plans, improvement plans, etc.
- b) Implementation – performance of all activities in accordance with plans and other internal acts.
- c) Verification - presentation of performed analyses and performance monitoring, internal judgement.
- d) Change - based on collected and analysed information from all stakeholders, the results of internal and external assessment, and performance measurement, the HEI quality assurance system is developed and improved.

The Act defines quality evaluation procedures and the activities of the Agency for Science and Higher Education as a public institution that ensures and improves quality in science and higher education. In accordance with the Act, the Agency independently and separately performs

evaluation procedures, namely, initial accreditation, re-accreditation, thematic evaluation, and external independent periodic assessment of internal quality assurance and improvement systems (audit).

Re-accreditation is a mandatory external evaluation procedure that all HEIs in Croatia undergo. This procedure evaluates the fulfilment of the necessary conditions (academic threshold) along with the evaluation of the quality of HEIs according to the defined quality standards. “The purpose of the procedure is to encourage further quality development in the main aspects of the activities of HEIs and to ensure that student study at HEIs/study programmes that meet the necessary conditions” (ASHE, 2021, 12). The procedure is carried out in five-year cycles, and the outcomes are a licence, a letter of expectation, or denial of a licence.

The first cycle of re-accreditation was from 2010 to 2016. The outcomes of the procedure were the issuance of licences for 76 higher education institutions, letters of expectation for 51 higher education institutions, and denial of licences for 4 higher education institutions and 28 study programmes (ASHE, 2021, 12). After its completion, the model was improved and the standards for quality evaluation in the re-accreditation process were defined (ASHE, 2019) and aligned with ESG from 2015. The second cycle is aimed at reviewing the improvements made by HEIs according to the recommendations for quality improvement from the first cycle and meeting the re-accreditation standards (ASHE, 2021, 12). The standards for quality evaluation cover five areas of institutional activity (topics) aligned with ESG (ASHE, 2019):

1. “Internal quality assurance and the social role of the higher education institution (ESG 1.1., 1.2., 1.8.) (6 standards),
2. Study programmes (ESG 1.2., 1.9.) (6 standards),
3. Teaching process and student support (ESG 1.3., 1.4., 1.6.) (10 standards),
4. Teaching and institutional capacities (ESG 1.5., 1.6.) (6 standards),
5. Professional/scientific/artistic activity (5 standards).”

Within each topic, standards are defined and compared with actual achievements (33 standards). The key standards are discriminatory, and failure to fulfil them impairs the quality of the entire HEI. For each standard and topic, the expert committee in the re-accreditation process specifies one of four grades: (1) unsatisfactory, (2) minimal, (3) satisfactory or (4) high-level of quality. The outcome of the procedure depends on the fulfilment of the key standards as well as the overall quality assessment.

3. Methodology

Upon completion of the re-accreditation procedure, the evaluation results are published on the Agency's website (ASHE, 2022b). For each higher education institution, documents (report of the Expert Panel - in Croatian and English, a statement of the higher education institution, an accreditation recommendation and a decision of the Ministry of Science and Education) and outcomes (ASHE/MSE - issuance of a confirmation on the fulfilment of conditions, issuance of a letter of expectation with a deadline for resolving deficiencies, or denial of a licence) are published. For the purposes of this study, the accreditation recommendations of the Agency for Science and Higher Education were analysed during the re-accreditation process of higher education institutions. The recommendations listed in the *Quality assessment* item show the assessment of the quality level by topics and standards (from (1) unsatisfactory to (4) high). The analysis includes HEIs that underwent the re-accreditation procedure in the second cycle from 2017 to 2021 (undergraduate and graduate level). The aforementioned procedure was

completed for 89 higher education institutions, of which 38 received confirmation, and 51 received a letter of expectation. (ASHE, 2022b). To determine the average results and the deviation from the average, descriptive statistics were used (minimum, maximum, mean value and standard deviation by topic).

Since this study investigated the existence of a link between the quality level of the internal quality assurance system and the quality level of other evaluation areas in the re-accreditation procedures, specific statistical tests were performed. Through key standard 1.1. *The university has established a functional system of internal quality assurance*, the development of the internal quality assurance system was evaluated, then it was separated and used for comparison with topics (1–5). The non-parametric Spearman correlation test was performed to determine the correlation between standard 1 and each topic as well as the correlation between topic 1 *Internal quality assurance and the social role of higher education* and the remaining topics. The Spearman correlation coefficient (product of rank correlation) is used to measure the connection between variables. It is based on measuring the connection consistency between the rank variables while disregarding the type of connection (Horvat & Mijoč, 2022). The Spearman correlation coefficient can be calculated using the following formula:

$$r_s = 1 - 6 \sum_{i=1}^n \frac{d_i^2}{n(n^2 - 1)}$$

where d is the difference between the two ranks of each observation, and n is the number of observations. Value -1 indicates an inversely proportional strong correlation while 0 indicates no correlation between the two variables, and 1 indicates a compelling positive correlation.

The Spearman test results were verified with two statistical tests: Kruskal-Wallis and Dunn's test. The Kruskal-Wallis test is a non-parametric test used to compare the results of a continuous variable (Newbold et al., 2010, 647). This is calculated using the following formula:

$$H = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{Y}_i - \bar{Y})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (Y_{ij} - \bar{Y})^2}$$

“ N is the total number of observations across all groups

g is the number of groups

n_i is the number of observations in group i

Y_{ij} is the rank (among all observations) of observation from group

$\bar{Y}_i = \frac{\sum_{j=1}^{n_i} Y_{ij}}{n_i}$ is the average rank of all observations in group i

$\bar{Y} = \frac{1}{2}(N + 1)$ is the average of all the Y_{ij} ”

Based on the main hypothesis of the paper, that a well-established internal quality assurance system ensures the quality of all areas of the institution, hypotheses H_0 is defined:

- H_0 (the null hypothesis): the median grades of the observed three groups are equal

Three groups are defined. The groups indicate grades from (2) minimum to (4) high. The Kruskal-Wallis test requires at least 5 measurements, and due to only two institutions receiving grade 1, the grade 1 distribution was not considered. The conducted test rejected the null hypothesis (H_0) for an equal relationship between all distributions, so we switched to Dunn's test to assess the relationships between the distributions of individual grades (Dunn, 1964). e.g. if grade 2 for Standard 1 is significantly different from grade 2 for topic 1. This is a non-parametric test based on the arithmetic mean, as opposed to the Kruskal-Wallis test based on the median. It is calculated using the formula:

$$z_{A,B} = \frac{\overline{W}_A - \overline{W}_B}{\sigma_{A,B}}$$

$$\overline{W}_i = \frac{W_i}{n_i}$$

W_i is group's summed rank

n_i is sample size

The results of the conducted tests are presented in the next chapter.

4. Results

The structure of the analysed higher education institutions by type and category is shown in Table 1.

Table 1: Structure of re-accredited higher education institutions

Structure of HEIs		Number of HEIs
Type	Private	18
	Public	71
Category	Faculty	50
	Polytechnic	16
	College	13
	University centre	2
	University department	6
	University	1
	Arts academy	1

Source: Authors according to <https://www.azvo.hr/ishodi-vrednovanja/>

Through the structure analysis of re-accredited HEIs, it is concluded that the procedure covers different HEIs both by type and structure, and the results are summarised for the entire sample. The re-accreditation results can be seen in Table 2.

Table 2: Results of re-accreditation (grades by topic)

Value	Topic				
	Internal quality assurance and the social role of HEI	Study programmes	Teaching process and student support	Teaching and institutional capacities	Professional / scientific / artistic activities
Topic number	1	2	3	4	5
Mean	2.86	2.83	3	2.92	2.53
std	0.63	0.63	0.52	0.63	0.59
min	1	1	1	2	1
max	4	4	4	4	4

Source: Authors according to <https://www.azvo.hr/ishodi-vrednovanja/>

According to result analysis, the higher education institutions achieved the highest grades in topic 3 *Teaching process and student support*, and the lowest in topic 5 *Professional/scientific/artistic activity*. The standard deviation ranges from 0.52 for topic 3 to 0.63 for topic 4. The highest score (4) high-level of quality was achieved in all topics, while none of the HEIs achieved the lowest score (1) unsatisfactory quality score in topic 4. The quality level of the internal quality assurance system was assessed in topic 1 through key standard 1.1 *The higher education institution has established a functional system internal quality assurance system*. This standard will be used in further analyses; therefore, it has been highlighted. The analysis determined that the average grade of this standard is 2.79, with a standard deviation of 0.66, a minimum grade of 1 and a maximum of 4.

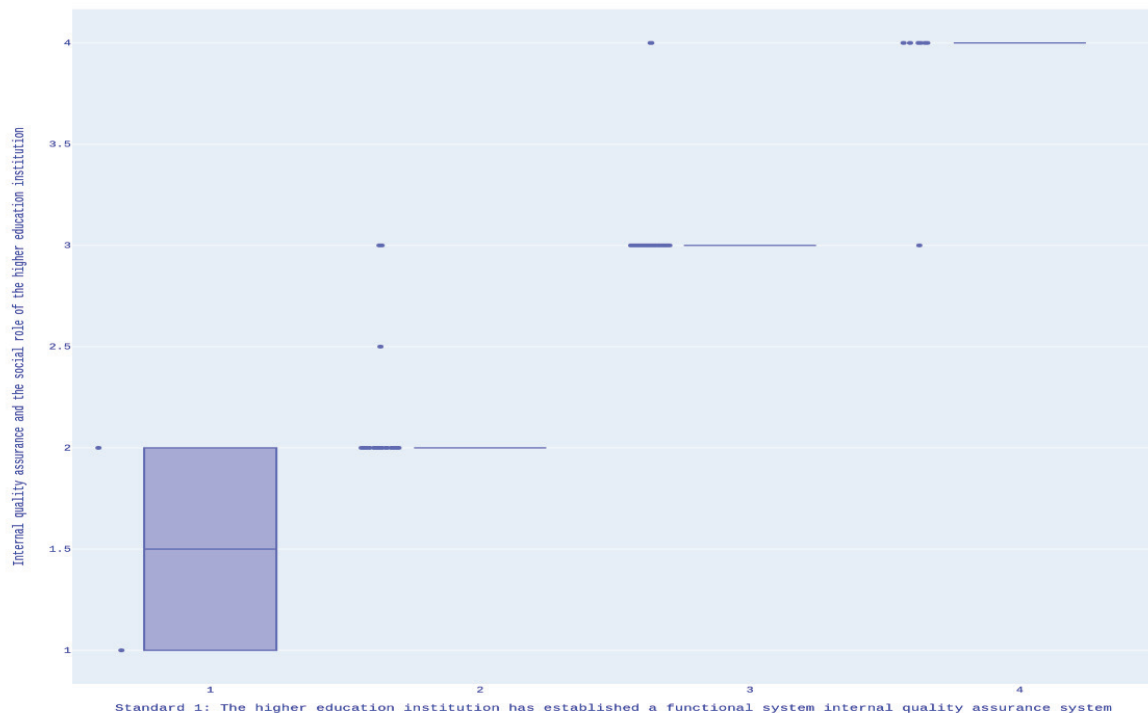
Since the paper determined whether there is a connection between the quality level of the internal quality assurance system and the quality level of other evaluation areas, a correlation was made between standard 1 and all topics, i.e. between topic 1 and the remaining topics. Spearman correlation was used and the results are shown in Table 3 and Figures 1 to 5.

Table 3: Correlation analysis (Spearman's rho) findings

Standard / topic	Topic	Spearman's	P
S 1	1	0.90	2.06e-33
	2	0.52	1.70e-07
	3	0.39	0.00
	4	0.56	8.55e-09
	5	0.32	0.00
T1	2	0.44	1.30e-05
	3	0.42	4.69e-05
	4	0.50	6.29e-07
	5	0.30	0.00

Source: Authors according to <https://www.azvo.hr/ishodi-vrednovanja/>

Figure 1 shows the connection between standard 1 *The higher education institution has established a functional system internal quality assurance system* and topic 1 *Internal quality assurance and the social role of the higher education institution*.

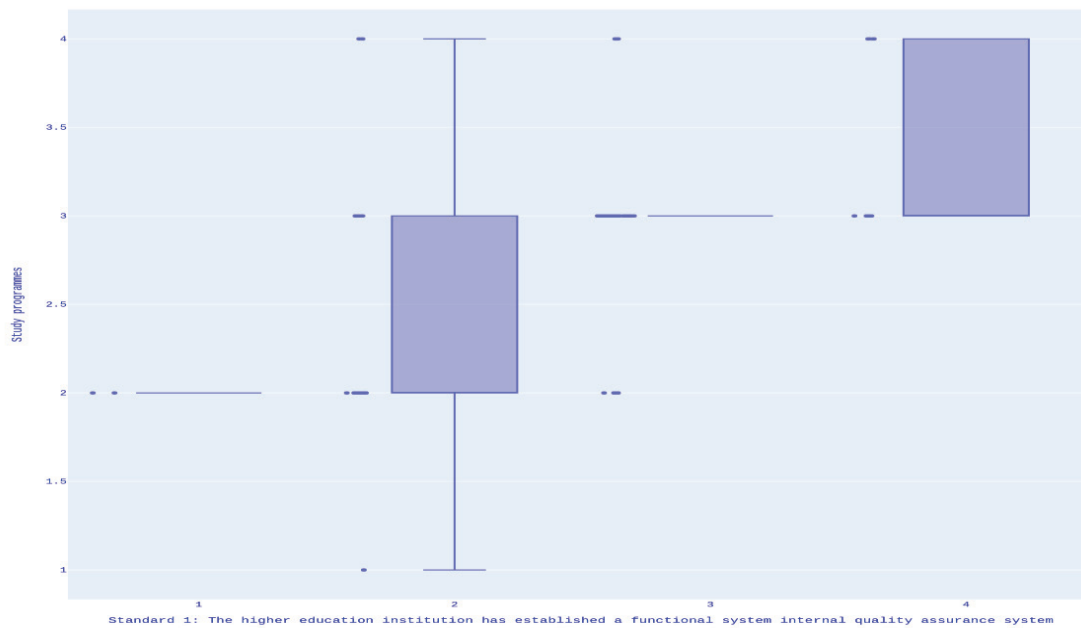
Figure 1: Correlation between standard 1 and topic 1

Source: Authors

By analysing Figure 1 results, it can be concluded that there is a linear connection between standard 1 and topic 1. The Spearman correlation proves the same. HEIs with unsatisfactory quality of standard 1 were rated unsatisfactory to minimal quality in topic 1 with a median of 1.5, while HEIs with a high-level of quality in standard 1 achieved the same rating in topic 1. Since standard 1 represents a key standard in topic 1, which emphasises its importance in the evaluation of the entire topic, this result is expected.

The connection between standard 1 and topic 2 *Study programmes* is shown in Figure 2. The results point to the conclusion that there is a substantial connection between standard 1 and topic 2. All HEIs that were assessed as having an unsatisfactory level of quality in standard 1 achieved the minimum level of quality in topic 2. Most HEIs with the minimum quality level in standard 1 achieved grades from minimum to satisfactory in topic 2 with a median of 2. The median of HEIs that achieved a satisfactory grade in standard 1 is also a satisfactory (3) level in topic 3, while the grades in topic 2 for HEIs with a high-level of quality in standard 1 range between satisfactory (3) and high levels (4). Spearman correlation test for standard 1 and topic 2 also shows a specific connection.

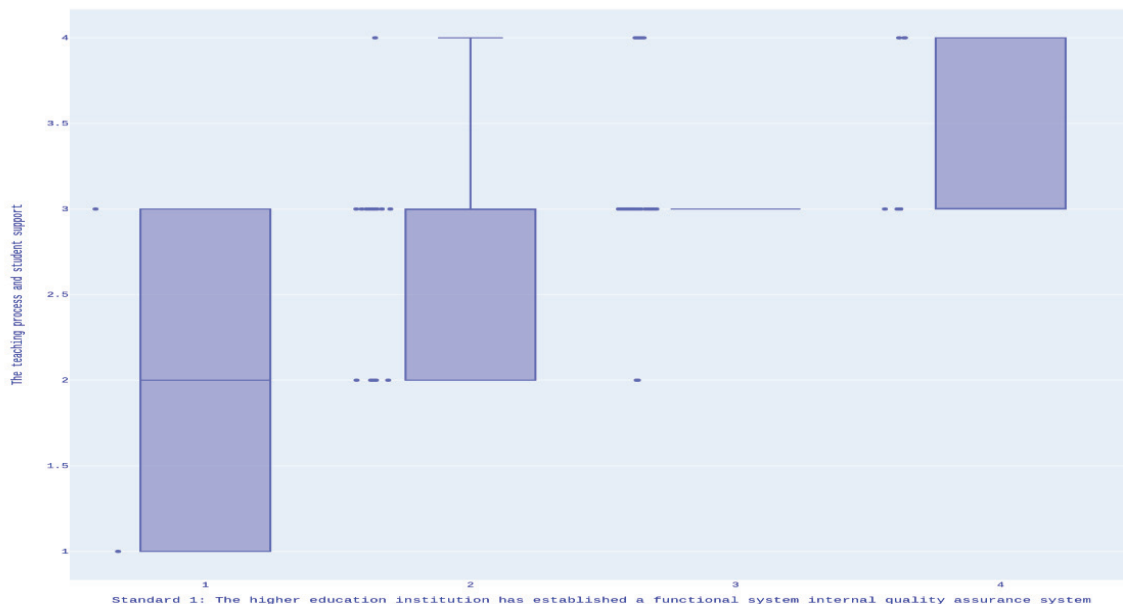
Figure 2: Correlation between standard 1 and topic 2



Source: Authors

The relationship between standard 1 and topic 3 *The teaching process and student support* is shown in Figure 3.

Figure 3: Correlation between standard 1 and topic 3



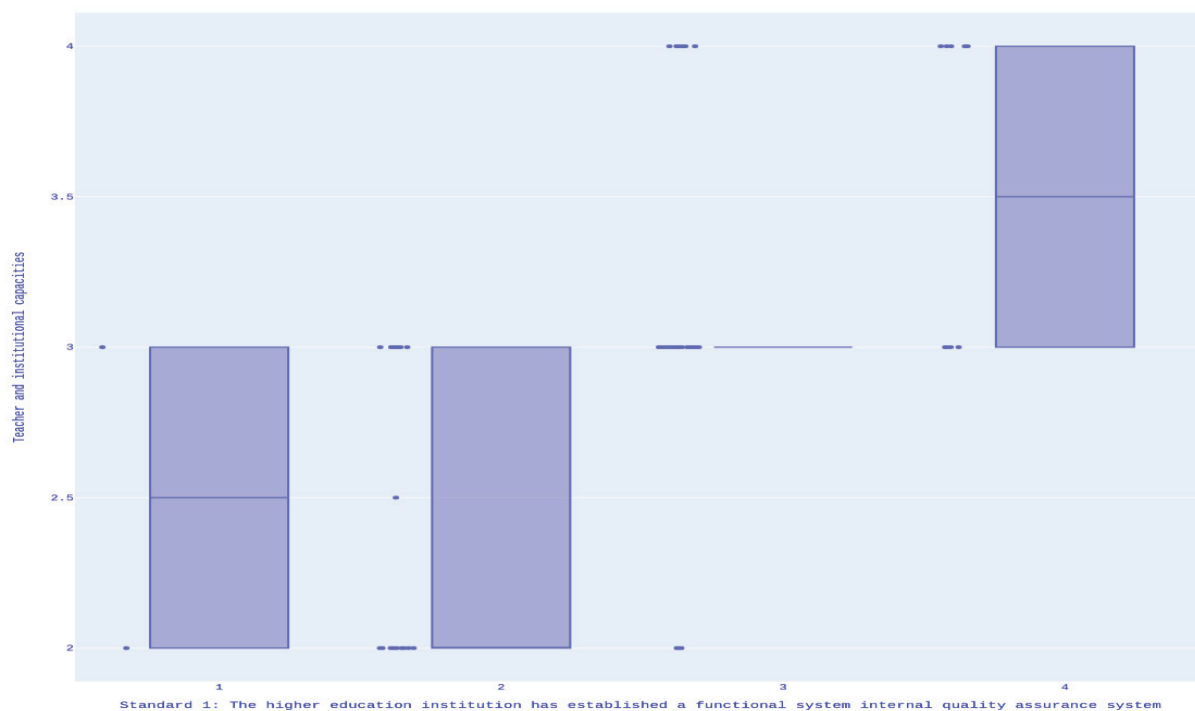
Source: Authors

The results shown in Figure 3 show that there is a low correlation between the grades in standard 1 and topic 3 with a coefficient of 0.39. HEIs that were evaluated with lower grades in standard

1 also achieved lower grades in topic 3, while HEIs with higher grades in standard 1 also achieved higher grades in topic 3. The median grade of topic 3 is (3) a satisfactory level of quality for HEIs that were rated (2) minimal, (3) satisfactory and (4) high-quality level for standard 1.

The connection between standard 1 and topic 4 *Teacher and institutional capacities* is shown in Figure 4.

Figure 4: Correlation between standard 1 and topic 4.

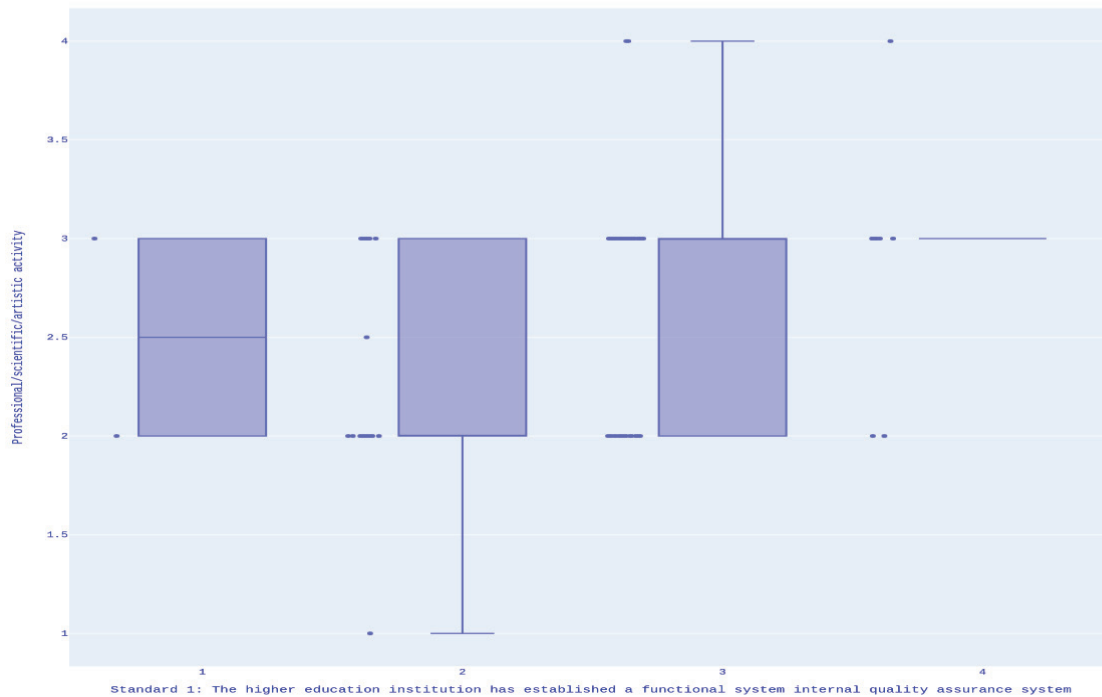


Source: Authors

Figure 4 also indicates the substantial connection between the grades in standard 1 and topic 4 with a correlation coefficient of 0.56. HEIs with lower grades in standard 1 achieved lower grades in topic 4, while HEIs with higher grades in standard 1 also achieved higher grades in topic 4. The median of HEIs that achieved grade (3) high-level of quality in standard 1 is also (3) high-level quality in topic 4.

Figure 5 shows the relationship between standard 1 and topic 5 *Professional/scientific/artistic activity*. The grades for topic 5 show the lowest level of correlation with the grades in standard 1, with a coefficient of 0.32. Topic 5 scores for most HEIs range from (2) minimal to (3) developed. The medians of HEIs with a grade (3) satisfactory and (4) high-quality level in standard 1 are (3) satisfactory quality level in topic 5. The median grade in topic 5 for HEIs that achieved grade (2) minimum quality level in standard 1 is also (2) minimal.

Figure 5. Correlation between standard 1 and topic 5



Source: Authors

The Spearman test confirmed there is a correlation between standard 1 and the topics as well as between topic 1 and the remaining topics. To verify the result, the Kruskal-Wallis test of hypothesis H0 was performed. Based on the Kruskal-Wallis test, it was proven that there is a significant difference between the standard 1 grade and the distribution of grades in all topics. The results are shown in Table 4.

Table 4: Kruskal-Wallis analysis

Standard / topic	Topic	Statistics	P	H0
S1	1	68.83	0.00	reject
	2	20.48	0.00	reject
	3	11.87	0.00	reject
	4	27.72	0.00	reject
	5	9.50	0.00	reject
T1	2	18.18	0.00	reject
	3	16.22	0.00	reject
	4	22.98	0.00	reject
	5	7.45	0.02	reject

Source: Authors

Based on the Kruskal-Wallis test, the null hypothesis (H0) was rejected for all distributions. The test proves that the distribution of standard 1 grades is significantly different in relation to the distribution of grades in individual topics. The P value (probability) is slightly lower for topic 5, but still significant.

A test between the score distribution in topic 1 and the remaining topics was also carried out. Here, too, the test showed that the score distribution in topic 1 differs significantly from the

score distribution in individual topics. The P value (probability) is the lowest for topic 5, but it is still significant because it is less than 0.05.

As the Kruskal-Wallis test generalised and rejected the null hypothesis for the relationship between all distributions, we used Dunn's test to assess relationships between the distributions of individual scores. The results are shown in Table 5.

Table 5: Dunn's test

S1 vs T1	2	3	4
2	1.00e+00	8.69e-10	7.97e-14
3	8.65e-10	1.00e+00	4.22e-04
4	7.97e-14	4.22e-04	1.00e+002
S1 vs T2	2	3	4
2	1.00	0.00	0.00
3	0.00	1.00	0.12
4	0.00	0.12	1.00
S1 vs T3	2	3	4
2	1.00	0.01	0.00
3	0.01	1.00	0.65
4	0.00	0.65	1.00
S1 vs T4	2	3	4
2	1.00	0.00	0.00
3	0.00	1.00	0.15
4	0.00	0.15	1.00
S1 vs T5	2	3	4
2	1.00	0.07	0.01
3	0.07	1.00	0.41
4	0.01	0.41	1.00
T1 vs T2	2	3	4
2	1.00	0.00	0.00
3	0.00	1.00	0.22
4	0.00	0.22	1.00
T1 vs T3	2	3	4
2	1.00	0.00	0.00
3	0.00	1.00	0.72
4	0.00	0.72	1.00
T1 vs T4	2	3	4
2	1.00	0.00	0.00
3	0.00	1.00	0.37
4	0.00	0.37	1.00
T1 vs T5	2	3	4
2	1.00	0.05	0.07
3	0.05	1.00	1.00
4	0.06	1.00	1.00

Source: Authors

At first glance, it can be seen that the distributions of all grades in standard 1 versus topic 1 (probability) are far below 0.05, which is solid evidence that the dataset comprising institutions that received a grade 2 in standard 1 is significantly different from institutions that received 3 or 4 in topic 1. The same applies to grades 3 and 4.

But such results were not obtained for all topics. E.g., the grade 3 distribution of standard 1 is the same as grade 4 in the topic *Study programmes* ($p=0.12$) while the grade 3 distribution of standard 1 is significantly different from the grade 2 distribution in the aforementioned topic ($p=0.00$). A similar situation is visible in the remaining topics. For example, the grade 3 distribution of standard 1 and the grade 2 of the topic *Teaching process and student support* are the same ($p=0.01$). While the grade 4 distribution of standard 1 and grade 2 of the same topic differed significantly ($p=0.00$).

The results of Dunn's correlation test on topic 1 and the remaining topics showed similar results. For example, the grade 2 distribution of the topic *Internal quality assurance and the social role of the HEI* is significantly different compared with the grade 3 ($p=0.00$) and 4 ($p=0.00$) distribution of the topic *Teaching and institutional capacities*. The grade 3 distribution of topic 1 and the grade 2 distribution of topic 4 are significantly different ($p=0.00$), while the grade 3 distribution of topic 1 and the grade 4 distribution of topic 4 are statistically the same (0.37).

Through the analysis of Dunn's test results, it can be concluded that HEIs that got a lower grade for standard 1 and topic 1 have little or no chance of getting high grades in other topics. The reverse is also true. The topic that deviates from these results is 5 *Professional/scientific/artistic activity*. There are no significant differences in the correlation between the distribution of grades in standard 1 and topic 5, and the distribution of grades in topic 1 and topic 5 (except for grade 4 in standard 1 and grade 2 in topic 5, where $p=0.01$). This result is expected because HEIs associate internal quality assurance systems with the improvement of learning and teaching, while they are less oriented towards the improvement of scientific, professional and/or artistic work. ESG, on which quality assurance systems are based, is primarily focused on quality assurance in the field of learning and teaching, but the importance of connecting with science and innovation is also emphasised.

5. Discussion and conclusion

Higher education represents the last step in the formal education of the population. The higher education system is continuously changing and adapting to market needs. To meet the growing market needs for highly educated staff, the number of HEIs in Croatia, as well as in numerous other countries, has grown significantly in recent times. Existing HEIs are expanding or merging, study programmes are changing or new ones are being offered. All these changes affect the expansion of the population's educational opportunities, and the provision of knowledge and skills needed by society. However, the intensity of changes in scope, coverage, employees and costs raise the issue of ensuring the quality of the higher education process and its final output - a graduate.

The Bologna process encouraged the European Higher Education Area, to which Croatia also belongs, to introduce formal mechanisms of evaluation and quality assurance, thus re-accreditation was accepted as one of such mechanisms. Through the re-accreditation process, independent bodies (agencies) evaluate and assess the quality level of higher education institution according to defined standards in all areas of activity and give recommendations for further improvements. The purpose of this procedure is to ensure that student study at HEIs that meet the necessary conditions and to encourage further development of the quality of HEIs, and the educational system as a whole. In the Croatian system of higher education, re-accreditation procedures are managed by the Agency for Science and Higher Education, and evaluation is

executed in accordance with the Act and standards for quality evaluation that are coordinated with ESG.

HEIs are responsible for ensuring the quality of all their processes and results, and defining their own internal systems for quality assurance in accordance with national standards, strategic goals and institutional specificity. A well-established internal quality assurance system covers all HEI's processes and activities, their planning, implementation, evaluation and improvement. The Agency performs evaluation and the quality level grading of all HEI activity areas through the re-accreditation process. To investigate the link between the quality level of the internal quality assurance system and the quality level of other evaluation areas, the results of re-accreditation were analysed for all Croatian HEIs that underwent this procedure in the second cycle. The results of the research confirmed the main hypothesis of the paper, that a well-established internal quality assurance system ensures the quality of all areas of the institution's activities.

The implementation of quality assurance processes in the context of comprehensive management of study programmes includes various activities related to programme development and improvement. The aim of these activities is to assess and improve the appearance, content and performance of study programmes (Henard & Roseveare, 2012). "All quality assurance initiatives are aimed at improving the overall academic quality of study programmes. This is especially important in the context of international accreditation, which confirms the compliance of the study programme with the European quality standards" (Roskosa & Stukalina, 2018).

The development of internal quality assurance systems creates formal mechanisms for evaluating and monitoring the teaching and learning process. The developed quality system focuses more on the role of teachers and teaching methods, and students are at the centre of teaching and their perspectives and interests are considered (Brennan & Shah, 2000). Alternatively, some research shows that quality assurance creates certain effects, although they are more related to management and accountability issues than to teaching and learning (Stensaker & Harvey, 2011; Mårtensson et al., 2012).

Teachers are important stakeholders in quality assurance because the quality of their teaching activities determines the competencies and success of students. In addition to teachers, the infrastructural and technical equipment of HEI and the library services offered to students play an important role in the teaching process. The quality of teaching and institutional capacities has a positive effect on students' knowledge and skills, i.e., competencies, and their employability in the labour market (Gora et al., 2019). Higher education based on competencies and focused on employability in a knowledge society needs education through research. Research abilities are important and useful to employees, and only research-related higher education can provide such competencies (Commission of the European Communities, 2002; Simons & Elen, 2007).

The results of the research presented in the paper show a weak connection between the development of the internal system for quality assurance and the assessment of the quality of scientific, research, and/or artistic work of Croatian HEIs. It is concluded that HEIs, when defining and implementing internal quality systems, pay considerable attention to the planning and implementation of study programmes, the teaching process, and student support, but there is room for improvement and development of internal quality systems in the field of

scientific/professional/artistic work. HEIs should develop their internal quality systems in order to better plan and monitor internal processes related to scientific and professional work.

The scientific contribution of this paper and the conducted research is visible in the research results that determine the link between the development of the internal quality system and the external quality assessment of HEI as a whole. The research results presented in this paper represent a scientific contribution to the field of economics in the theoretical and applied areas. The scientific results have a special value for managers of Croatian HEIs, the responsible Ministry and Agencies, and they clearly point to the importance of developing the internal quality system and the areas that need to be improved in the future.

The observed period is the period from 2017 to 2021, and it covers 68% of HEIs. It is a representative sample, and the results are expected to be relevant for the remaining HEIs. The paper analyses the results of re-accreditation of all HEIs, regardless of category (faculty, polytechnic, department, etc.), which is a limitation of this paper. Given the structural differences in the operations of these HEIs the authors encourage future research in which the data for each group of HEI will be analysed. The fundamental limitation of the research is that it is based on the analysis of the topic evaluations without considering the qualitative descriptions of the achieved results and recommendations for improvement. A more detailed analysis of the complete report of the expert committee, their qualitative analysis of the achieved results and recommendations for improvement for each topic and standard, would give a better insight into the real quality of HEIs, therefore research in this direction is encouraged.

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A scientific paper

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COMMUNICATION ON SOCIAL MEDIA AS A FUNCTION OF QUALITY OF LIFE AND SUSTAINABLE DEVELOPMENT: THE COMMUNITY POLICING PERSPECTIVE

ABSTRACT

The goal of this qualitative study is to determine the intensity and modalities of police communication on social media and to identify the potential of such communication from the perspective of community policing as a model of police work that prioritises solving problems, preventing crime and public disorder, thus improving quality of life. Because there are almost sixty police officers in charge of public relations in Croatia, a focus group of six such police officers was formed. They represent all four categories of police administrations in Croatia, the Police Directorate and the Civil Protection Directorate. The focus group protocol is based on a semi-structured interview. The results show that social media are primarily used by the Civil Protection Directorate in their daily work because they enable the fastest flow of information necessary for rescuing people and property. Other organisational units use social media in a limited and very selective manner depending on which category of the population they are addressing because different age groups prefer different social media. The research participants agree in the assessment that citizens readily accept this form of communication with the police and are, therefore, more willing to provide information based on which the police can solve problems promptly and prevent crime. The most important finding of this research is that the police often appear cold and impersonal to citizens on other media, while communication on social media gives citizens a sense of connection with the police, which can contribute to strengthening social capital, collective efficacy, and informal social control, which are all critical components of quality of life and sustainable development.

Key words: *social media, police, communication, community, quality of life.*

1. Introduction

Since the beginning of this century, the progress of modern technologies has brought rapid changes in communication modalities and is increasingly moving it from the physical to the

virtual space. Such modes of communication are desirable to younger and middle-aged people, and the police must adapt to this to preserve and further develop partnership relations with the community it serves and protects. The COVID-19 pandemic additionally demonstrated the necessity of adapting all social institutions to communication in the virtual space. In a modern democratic society, communication is one of the police's critical tools because its effectiveness in detecting and preventing crime largely depends on information from citizens (Cajner Mraović, Faber, Volarević, 2003; Cordner, 2014; Roberg et al., 2015). This study aims to determine the intensity and modalities of police communication on social media. It also aims to identify the potential of this communication from the perspective of community policing as a model of police work that prioritises police-community partnership in solving problems, preventing crime and public disorder, and thus improving the quality of life and contributing to two UN sustainable development goals: Peace, justice and strong institutions, and Partnership for the goals.

2. Conceptual framework

2.1. Community policing

Security is an elementary human need, which in Maslow's famous hierarchy of needs (Cherry, 2022) is right behind the needs for air, water, and food. An inadequate satisfaction of security needs is a direct danger to the physical integrity and life of every human being. For this reason, every modern democratic society treats security as a public good and, therefore, has adequately developed institutions that ensure the security of individuals and communities. The police are an essential part of the security system of every country. The police's role in a modern democratic society is significantly different from their role in different forms of totalitarian regimes (Grant, Grabias & Godson, 2006). A vital component of that difference is related to sustainability and sustainable development. In totalitarian societies, the police do not care equally for the safety of all citizens. Still, their primary task is the protection of political elites, which can even harm the safety of other citizens, especially those who might oppose these political elites. It is clear that such social arrangements are not sustainable and for that very reason, they have appeared in different forms throughout history.

Society entrusted the police with authority to encroach on human rights so that the police could effectively suppress crime and public disorder (Alpert, Dunham, Stroshine, 2015). However, the only and main criterion of police efficiency today is no longer the speed of detection of crime and its perpetrators, but the success in preventing crime (Muir, 2021, 4). To achieve such a goal, partnership cooperation between the police and citizens, as well as the various social groups citizens belong to, from family, neighbourhood, local community to schools, work organisations to civil society associations, is necessary (Scheider, Chapman & Schapiro, 2009). For this reason, community policing has been encouraged and developed for decades in modern democratic states worldwide as a model of police work whose key components are proactive problem-solving and police-community partnerships (Kappeler, Gaines, 2011; Scheider, Chapman & Schapiro, 2009). Proactive problem-solving means acting on risk factors in terms of the occurrence of deviant and criminal behaviour, and impairment of the quality of life in the community (Kappeler, Gaines, 2011). When such problems in the community are solved in a timely manner, "there is a higher level of civility and tranquillity in a community" (Kappeler, Gaines, 2011). The police cannot do this alone. Nevertheless, research and practice show that the police, due to their specific role in society, are suitable for initiating the cooperation of all key stakeholders in the community to solve

particular problems and coordination, which then further develops to the level of collaboration, i.e. partnership (Kappeler, Gaines, 2011; Scheider, Chapman & Schapiro, 2009). Therefore, some authors (Donner & Maskály, 2023) view community policing as a combination of crime prevention techniques and community building.

It is the most precise definition of community policing because it respects the theories on which the community policing model is based, such as Broken Windows Theory, Normative Sponsorship Theory, and Social Resource Theory (Bitaliwo, 2014). All these theories emphasize security and community building; they see adherence to norms and safety as critical prerequisites for community building. The same definition is also compatible with Procedural Justice Theory, which is imperative in modern community policing. It consists of four dimensions: 1) being fair in processes, 2) being transparent in actions, 3) providing an opportunity for voice, and 4) being impartial in decision-making (Skogan, Van Craen & Hennessy, 2014). Respecting these principles in the daily work of the local police contributes to its partnership relations with citizens and stakeholders, which guarantees the safety and sustainability of the community (Schulhofer, Tyler & Aziz, 2013).

The Croatian police have opted for community policing (Borovec, Kutnjak Ivković, 2013) because the traditional, exclusively reactive approach to police activity yields limited results (Kovčo Vukadin, Borovec, Golub, 2013). Although contact police officers and PR officers are the most visible form of community policing, it is as model that includes the entire police organisation because it represents a comprehensive philosophy and not an individual police tactic (Kappeler & Gaines, 2011).

2.2. Social media

Already at the beginning of this century, there was an awareness that we are in a new information age, in which the key concepts are networks and networking (Castells, 2000). The Internet and the World Wide Web have been used to encourage social interaction since their appearance. However, during the first decade of this century, there was an evolutionary shift in the social component of their use, largely thanks to the rapid expansion and improvement of Web 2.0 functionality (Obar, Wildman, 2015). In this century, social media have thus very quickly acquired the status of an important business and social phenomenon. But precisely because of this expansive character of social media, defining them is challenging (Obar, Wildman, 2015). Burges, Marwick and Poell (2018), therefore, opted for a minimalist definition according to which social media are digital Internet technologies that enable and facilitate communication and collaboration among their users. With such a definition, they managed to avoid the pitfalls of technological progress and the continuous emergence of new forms of social media. Nevertheless, they question the value of a definition that is so general and imprecise. However, similar solutions were suggested by other authors, so, for example, Kaplan and Haenlein (2010) define social media as Internet applications that enable their users to create and exchange content.

The widespread use of social media by citizens, and especially the broad scale of repercussions of this phenomenon on the performance of police work, have for years increasingly required police organisations around the world to develop and implement police adaptation strategies in terms of the use of social media in their daily work in different lines of work, i.e. different types of police. Thus, social media have become essential to organisational changes in police services. This was the subject of a research study financed by the European Commission between 2010 and 2014. The main goal was to identify and understand the

organisational changes of the police in different European countries. A part of that study explicitly focused on organisational changes related to introducing new information and communication technologies in police practice (Denef et al., 2012). The results showed that, although all police organisations in Europe faced the need to use social media equally, the modalities and dynamics of integrating social media into police activities differ significantly from country to country (Denef et al., 2012).

The same study identified the best practices for integrating social media into police activities. Police can use social media to increase efficiency by obtaining information about criminal acts. Social media are also suitable for presenting police work to the general public. Social media fit well into the community policing model because they enable dynamic interaction between the police and the community (Denef et al., 2012). In question is the fact that communication on social media is bottom-up, opposite to the regular communication within the police, which is hierarchically organised top-down (Denef et al., 2012). However, community policing deviates from that traditional model. It provides police officers more opportunities to make decisions instead of acting on orders because this is the only way to achieve quality communication between the police and the community. Some authors (Tsekeridou et al., 2019) even claim that social media enhance community policing because they enable prompt and straightforward communication between members of the police and members of the community, which significantly contributes to the quality of cooperation and the creation of a partnership between the police and the community.

3. Current study

Not all European countries, Croatia among them, participated in the previously mentioned European Commission study. Therefore, it is worth investigating the situation ten years later, when the use of social media is even more intense and almost imperative in various spheres of personal and social life. This study aims to answer two research questions:

- (1) Which social media does the Croatian police use in public relations and to what extent?
- (2) How and to what extent does the Croatian police use social media to establish partnerships with the community?

Traditionally, the police have relied on their public relations officers to inform the public, but this approach only allows for one-way communication, leaving citizens as passive recipients of information. To establish a stronger partnership between the police and the community, fostering open and quality two-way communication is essential. While social media platforms present a promising opportunity to facilitate dialogue, the Croatian police only authorize their public relations officers to communicate through social media. Given the critical role that public relations officers play in community policing, this study focuses on their practices.

4. Methodology

4.1. Sample

The target population consists of 57 employees in charge of police public relations in twenty police administrations covering the territory of twenty counties in Croatia, the Police Directorate and the Civil Protection Directorate. The sample of six respondents, consisting of 5 women and 1 man, was formed in the manner that the competent department of the Ministry

of the Interior was provided with the criteria, in order for them to identify the members of the target population meeting the criteria. The criteria were the following: the total number not amounting to less than 10% of the target population, at least 10 years of work experience in the current position, same sex ratio in the sample and the target population, as well as inclusion of all four categories of police administrations, the Police Directorate and the Civil Protection Directorate. None of the selected police officers refused to participate in the study.

4.2. Instrument and data collection

The conversation was conducted online based on a semi-structured interview in November 2021. The modalities and intensity of using social media in the structured part of the questionnaire have been covered by the following questions:

- (1) Which digital channels and social media do you use to communicate with citizens?
- (2) Which citizens do/could you address via social media?
- (3) Can posts on social media negatively affect the public perception of the police?
- (4) Is it possible to influence public opinion about the police using social media?
How?
- (5) Do you consider it appropriate for the police to communicate with the public about completed criminal investigations, and missing and wanted persons via social media?

The modalities and intensity of using social media to establish partnerships with the community have been covered by the following questions that include the four dimensions of the Procedural Justice Theory:

- (1) Would improving police communication using social media increase the number of contacts with citizens?
- (2) Do the police use social media to respond quickly to emergencies and arrest criminals?
- (3) Does the contact of citizens with the police via social media enable equal treatment of different social groups? (impartiality)
- (4) Can improving police communication on social media increase people's obligation to act as requested by the police? (fairness)
- (5) Should the police use social media to explain certain decisions and reasons for specific actions? (transparency)
- (6) Does the communication of the police with citizens on social media enable receiving a greater number of reports compared to other forms of communication? (voice)
- (7) Does communication on social media help the police to solve social problems through involvement of and cooperation with citizens?

The study was carried out in accordance with ethical standards for conducting research on human subjects, and it has received the necessary approvals for its implementation. Participation in the focus group was voluntary and anonymous. Initially, the participants were presented with the goal, manner of working, and rules of conduct during this type of research. Each participant was informed of the possibility of withdrawing from the study at any time. Two moderators led the conversation. The conversation lasted 90 minutes.

4.3. Data analysis

The study's codes were derived from the questions asked during the focus group discussions. The first topic codes were based on research conducted by the European Commission (Denef

et al., 2012), and the second topic codes were based on the dimensions described by Procedural Justice Theory. However, the analysis revealed the need for additional codes to account for the earthquake's impact and the lack of police officers for public relations.

5. Findings

5.1. Modalities and intensity of use of social media in police work

All study participants use e-mail to communicate with citizens, while the Civil Protection Directorate uses Facebook and Twitter. In connection with COVID-19, they also created a Viber group that informs citizens about current events. It was essential during the intensive implementation of measures to combat the COVID-19 pandemic because these measures changed depending on the number of infected people in an area. Hence, citizens had many questions on a daily basis.

"In Zagreb, when there was an earthquake, and in Petrinja as well, people in such situations run away from danger, they don't sit in front of the television, they can't be informed in that way, in such situations, it is best to send information via social media."

Facebook has proven useful mainly for communicating with middle-aged and even elderly people, while Twitter is predominantly for the younger and middle-aged population. The Civil Protection Directorate has good experiences with both social media mentioned, encouraging considering about the desirable expansion to other social media.

"Young people also use Instagram, Snapchat, etc. Different social media should be used in parallel to be able to cover everything. Just for that purpose, the police should have a sufficient number of people, and priorities should be clear, as well as what should be communicated most to citizens and to what categories of the population."

"Today, everyone is on social media. I know people who are 80 or over 80 and are regularly on Facebook. Young people are constantly using new social media. It is questionable to what extent we could keep up with the number of employees we have. The worst thing would be if we were not consistently present because you cannot provide people with information and then stop doing so. Either you do it or you don't."

An additional severe limitation to the better use of social media in police work is the comments on social media that could negatively affect the perception of the police. Some study participants consider this to be a major problem because communication on social media is fast and widely available, so the damage caused by negative comments is difficult to repair.

"This is always going to be present. Always. Once a negative comment is posted, then the others just follow. It's best not to read further or at least not immediately because it's not always good to react right away."

"In such situations, I think to myself: let it sit for a while."

Some study participants are not concerned about negative comments on social media.

"There will always be negative comments. We will never have 100% positive comments. That's my opinion because this is how things are in general."

"Whoever is against you is always against you, and that's it."

When the study participants were asked to evaluate the possibilities of a positive impact of police communication via social media on public opinion about the police, emphasised as the crucial factors were speed and immediacy in the exchange of information on social media w.

"What always bothers people about police reports is their uniformity and coldness. Communication on social media is lively and always original. There are no patterns or complicated expressions, and people like that."

"Our releases are one-way. Even when there is a press conference, only journalists ask questions. Citizens read or watch it. That was enough ten years ago, not any more today. Otherwise, we would establish a police radio station and just broadcast the news, but that doesn't work any more. Communication should be two-way because we also want two-way cooperation. We also need information from citizens, not only citizens from us."

The research participants, therefore, recognise the need for partnership cooperation between the police and citizens, but they also are aware of the need for partnership cooperation between different social institutions. In this regard, another major issue was highlighted, mainly in the areas that were hit by the earthquake in December 2020. People have various inquiries because many residents are still living in temporary accommodation and reconstruction has been delayed. Nevertheless, the information is not provided in a timely manner and is not entirely relevant. The study participants agree that quality cooperation between different public departments and institutions is necessary in such crises, which only exists with adequate communication. Only in such as situation is prompt and content-precise communication with citizens possible.

"In a situation like an earthquake, we are involved in many other professions from which you have to collect information... The problem is the cooperation of those other bodies, state bodies, to provide you with good information. We said we were going to be honest here, so unfortunately, I have to say that this is still non-existent here. At least not everywhere. Some bodies work perfectly, cooperate well, but there are also those from which you can't even get it even in point form. And how can you do your job of informing the public, and you don't have that information, or you don't know what the correct information is if you have conflicting information, or you don't know who the expert is? We must stand behind what we communicate to citizens, and how can we do this in such situations?"

It follows from the above that the research participants are very focused on their difficulties in communicating with citizens. Even when asked about the positive aspects, they return to the negative ones. Therefore, in the conversation, they had to be brought back to thinking about the current and potential positive effects of communication via social media on public opinion about the police.

"It depends on what you are conveying at a specific moment. But also through some nice things, such as the Civil Protection Directorate, our dog Gizmo, the most famous paw in Croatia, rescue from the ruins... People like good things, so even when there is hardship, there is always a silver lining."

"Yes, and to show us in those stories, we are only people. We have our good sides, and we have our bad sides as well. The worst thing is without emotion."

"Now that we're talking about positive influences, at least how we do it in our police department, when we find time, when we have a press release, of course, the media reports it the way it suits them, but then we put it on our Facebook page as a warm, human story along with the press release. Of course, there will be haters and various comments, but sometimes there may be some new findings for us within those comments. We always follow it on various portals because there are some things we wouldn't know about if we hadn't read them in the comments on those portals."

"Operationally valuable information can be found on Facebook. We use it to solve a crime, and resounds positively in the community. People appreciate us when we are efficient."

All study participants agree that it is appropriate and valuable for the police to communicate with the public about completed criminal investigations related to crimes and misdemeanours, missing and wanted persons, and other forms of deviant behaviour.

"We have had cases when some things have disappeared, and we put it on Facebook, and people contact us with information, and things are found in that way. I think this is ok, at least here. I don't know how other police departments work."

It follows from this part of the conversation that this practice is different in different police administrations, but all research participants equally recognise great potential in it. However, they also emphasise the issue of available human resources.

"It's all great, but it must be taken care of."

"We're getting the work done, slowly, but it's getting done..."

5.2. Using social media to establish police-community partnerships

Regarding the previously elaborated topic of the focus group, study participants of their own volition mentioned the need to continuously raise the intensity and quality of cooperation between the police and citizens. In this sense, they highlighted the possibilities provided by social media. They undoubtedly recognise the potential, of which they have no doubt, but they assess their resources for realising the potential as questionable. This is probably the reason why they seemed confused when asked if they think improving police communication via social media would increase the number of police contacts with citizens.

"Yes, we definitely would. But this brings us back to the previous problems: staff capacity and the number of people dealing with it. The worst thing is if citizens ask for something, and we lack people... There are other problems: not only the number of people, but also their level of education, the technical capacities... a bunch of additional, secondary things will also have an effect... it's not that we don't recognise

opportunities for more and better communication with citizens, but the question is what we can realistically do. "

" I have an example: we have a perfect young employee, she is educated specifically for social media, she is communicative, she likes to do it, she understands the job very well, but the problem is she doesn't get around to it even though social media are her area of expertise! She has to do other tasks, a lot of them and demanding ones. She has to do a hundred other tasks because there are very few of us. When the coronavirus and the earthquake started, we worked almost 24 hours a day, and it was fine for a while, but then health begins to suffer... and then another issue comes up: the issue of satisfaction, wages..."

"We lack technology. We lack people. We lack knowledge. In our case, just one colleague is competent in social media. She knows the apps. She knows how it all works. The rest of us learned from her or taught ourselves. That can be ok, but only to a certain extent, otherwise, the same issues arise: satisfaction, wages... To be clear: first, you need satisfied employees, and then you can expect them to make citizens satisfied as well."

All the study participants expressed their displeasure that they could not adequately devote themselves to improving communication between the police and citizens. In this regard, they presented several examples of their daily frustrations related to limitations: limitations of available time, limitations resulting from official rules, and constraints associated with the available technology.

"It destroys your will to work when one minute you're doing one thing, the next minute you're doing something completely different, and soon afterwards you have to rush to a press conference. It doesn't work. It's impossible..."

"We always have some kind of limitations: either you can't access something, or your Internet is poor, or your computer is slow..."

Interestingly, the conversation continued in the direction of internal communication and relations within the police, although the topic is related to external communication and relations between the police and citizens. Study participants agree that unrealistic expectations are often placed before them, impairing their ability to communicate well with citizens. Therefore, the following question about whether the police use social media to react in emergencies and arrest criminals quickly was useful to steer the conversation back to the default topic. However, it was also partly addressed in the last part of the conversation, which referred to the peak of the COVID-19 pandemic and the situation after the earthquake. Some participants have concrete experiences in this regard, and those who do not state that they perceive vast possibilities. The Civil Protection Directorate proved to be the most experienced, with social media become increasingly important in their daily work due to their reach, availability and speed of information flow. Interestingly, this does not only apply to the reactive part of their work, but also they see a substantial proactive and preventive potential in communication via social media.

"So that is what is important to us. Regardless whether it's an earthquake or a flood, which is less common, but often there is a forecast of a storm, and then you can send a message to all users in a certain area for which it is forecast, and everyone online can see it immediately."

In this part of the conversation, the study participants once again emphasised the importance and necessity of the partnership between the police and the community. This is the only way to achieve the ultimate goal: safety and quality of life.

Interestingly, the research participants did not understand the question of whether citizens' contact with the police via social media enables equal treatment of different social groups. The reason for this misunderstanding was that they do not differentiate between people according to any criteria in their work. That is, they treat everyone equally. They identify the opposite risk with social media because they are not equally accessible to all citizens. Some citizens will, therefore, be deprived of important information and communication with the police. In their opinion, this risk is higher for people of lower financial status, who, therefore, lack adequate equipment for communication via social media and for people in those geographical areas where Internet availability is poorer. To some extent, they also see a risk for the elderly. However, they repeat the previous statements that the situation is changing rapidly and that one only needs to take care of which social media are preferred by which age group.

The study participants were very selective in their answers to whether improving police communication via social media can strengthen people's sense of obligation to act as the police require. They correctly identified the dimension of the Procedural Justice theory that is key here: fairness.

"There is no correlation between the number of messages and the obedience of citizens. At least, I cannot see it. It is more a matter of trust in these messages, whether the source that posts them has such a status that it can be trusted."

"If we tweet a lot and are honest, fair and help people, then ok, then they will also be honest and fair with us, and help us when we need them. But if communication is not two-way, if we only tweet a lot and there is nothing else behind it from our side, then we cannot expect anything from citizens either, possibly disappointment and even less willingness to cooperate."

"So if the police tweets about something and a person then asks for help from us, and we do help them, then the next time that person sees that the police is asking for something, they will think, ok, they helped me, now I'm going to try to help them. And that has nothing to do with the number of tweets and posts, but how we work."

In response to the question of whether the police should use social media to explain certain decisions and the reasons for specific actions, the research participants were not so elaborate. Although everyone answered the question in an affirmative manner, there was no discussion, which can partially be attribute to the length of the conversation. However, the option that they are less familiar with transparency as a dimension of the Procedural Justice Theory compared to fairness and impartiality should be considered.

Similar to the above were the answers to whether police communication with citizens via social media enables receiving more reports (of various issues) compared to other forms of communication. The moderator's additional clarification that police officers should listen to and show interest in what people want to say even if they cannot help them has affected the study participants in an unexpected way. Instead of recognising voice as a dimension of the Procedural Justice Theory, they associated it with cases in which citizens had unrealistic expectations from them.

"Hmmm... No. Because then the following situations will happen: for example, someone sends something, writes a scam on WhatsApp and sends a screenshot and

nothing else, so now it's no longer my problem but yours. You cannot work in that way because if someone has suffered damage, he or she still has to do a bit more than send a single message. We have already said that nothing works without two-way communication."

"I agree with my colleague because, especially by email, we receive all kinds of screenshots. However, it is better for people to physically come to the station because they will then provide more information."

In the answers to the question of whether communication via social media helps the police to solve social problems, in addition to involving and cooperating with citizens, beneficial information was also obtained, such as, for example, the inability to perform the work of contact police officers adequately. These are police officers on patrol whose task is to act proactively in a precisely defined territory. There are about 700 of them throughout the entire country, which is a valuable potential, but due to insufficient numbers of them, they have less and less time for proactive work and mostly perform police interventions. To a certain extent, police officers in the prevention service and police officers for public relations try to compensate for this. The research participants provide examples of their involvement in humanitarian campaigns and other initiatives important to the community.

"We try to do not only police work, but to expand it a bit so that we are constantly present in the community."

From this statement, however, it is evident that the presence of the police in the community is still separated from the myth of "real" police work.

6. Discussion and conclusion

In parallel with changes in the social context, the police necessarily change its role in society. Thus, the tools used by the police in their daily work also change. This was shown by the results of this qualitative research, the participants of which were police officers in charge of public relations. Although they do not perform typical police tasks such as police patrols, police interventions in response to citizen reports, road traffic control or criminal investigations, they play an essential role in detecting and preventing crime and maintaining the state of security in an area, because they are in continuous communication with the community. The more intensive, two-way, and interactive this communication is, the better the effect is for the police and the community. The police need the information they receive from citizens because police officers can only be present at some places and not everywhere. The local population knows their surroundings best and can quickly spot anything suspicious, risky or, in any other way, different from the usual situation. The community also needs information from the police, which is especially important in some extraordinary circumstances, when there is a danger to people and property. According to the results of this study, it is precisely in such situations that the police use social media the most, which shows that complete application of social media in police communication has yet to be found. Moreover, the research showed both that there are still vast possibilities for communication via social media and considerable objective obstacles related to limitations in the number of police officers, their competence for the use of social media, and the available technology.

It is important to note that this research pointed to similar vital facts about the Croatian police as the research conducted a few years ago by Cajner Mraović and Faber (2016), a kind of disparity between internal and external procedural justice. Both surveys showed that police officers undoubtedly understand the need to connect with the community and, therefore, strive to achieve the highest possible quantity and quality of communication with citizens and

stakeholders. Nevertheless, at the same time, they feel that the relevant and sufficient prerequisites for this are missing within the police system. Although the public often has distorted ideas about the police as an organisation that can do everything only because it has powers that other social actors do not have, which then results in the often unrealistic expectations of the public from the police, the police organisation is subject to the same organisational laws as any other organisation. In this research, the participants clearly warned of the negative consequences of such circumstances in terms of loss of job satisfaction and then job motivation.

The concept of procedural justice is crucial for the police because they need to ensure that people adhere to the norms, which is one of the critical prerequisites for safety and quality of life and, thus, the sustainability of the community. Initially, this concept arose as an effort to answer the question of why people adhere to norms (Tyler, 1990). This question deviates from traditional criminology positions, which focus on identifying risk factors of deviant behaviour. It seeks to understand why people do not adhere to norms (Jackson et al., 2011, 5). From the aspect of safety and quality of life, both questions are important because the answers provide guidelines for the work of social control bodies. In developing the concept of procedural justice, it was identified that it could be divided into two components: internal and external. Research shows their mutual connection (Donner & Olson, 2020). Therefore, the police can only expect a partnership with the community if quality communication and cooperation dominate within the police system.

In addition to the fact that the participants of this study directly verbalised a particular discrepancy between internal and external procedural justice, the same is indirectly indicated by other findings obtained through this study. Thus, it was shown that study participants undoubtedly respect and practice two of the four dimensions of procedural justice: fairness and impartiality. It is essential to know that the Croatian police act fairly and equally towards all citizens. However, it is equally important to note that there are still specific barriers in terms of transparency and especially voice. It can be assumed that the origin of these barriers can be partly be attributed to the police and partly to the community. The police are a hierarchical organisation. It is very demanding for police managers, especially middle-level managers, to maintain a strict hierarchy and all aspects of internal procedural and organisational justice. This problem can be solved through a system of additional professional training and development. However, for this to be truly effective, a clear strategic orientation is needed at the highest levels of police system management so that there can be more human and material resources for implementing the police strategy in the community. The issue from the perspective of the community is the need for more and adequate information about the police, which often results in unrealistic expectations of citizens from the police. It is possible to act on this problem by increasing the intensity and quality of communication between the police and the community. Research conducted in a dozen European countries (Denef et al., 2012, 24) showed that social media are suitable for informing the public about police and police work. This is extremely important because it is unrealistic to expect a partnership from actors who need to learn about and understand each other sufficiently.

This study certainly has its limitations in terms of the number of participants and the duration of the focus group. However, the fact that its results show an internal coherence based on a relevant theoretical framework and that they are consistent with some earlier research carried out on larger samples of police officers certainly give rise to the previously highlighted practical implications, but also to future research directions that should identify the relationship between internal and external procedural justice in the Croatian police, as well as

its fundamental strategic determinants. Based on these findings, it would be possible to plan relevant further improvement of the functioning of the police and to remove the current personnel and material barriers in achieving a partnership with the community. In this way, the police can best contribute to realising the UN's sustainable goals concerning partnership and peace, justice and strong institutions, that is, to the sustainability of the communities it serves and protects.

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A scientific paper

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MOTIVATION DURING E-LEARNING – CASE OF STUDENTS FROM THE FIELD OF ECONOMICS AND BUSINESS IN CROATIA

ABSTRACT

Teachers at all levels of education face challenges when it comes to motivating students to actively participate in the learning process. These challenges certainly depend to some extent on the field of study, but also on the learning environment and tools used in the teaching process. Therefore, the subject of this paper is related to exploring students' motivation during e-learning, primarily in the field of economics and business. The goals of the paper are: 1) to analyze possible reasons for enrolling in business school, 2) to analyze previous research regarding challenges with motivating students during e-learning, as well as issues that have been encountered by both teachers and students, 3) to investigate if students are more motivated during traditional learning or e-learning, 4) to explore if there is a difference between the level of motivation of high-school students when compared to university students, and 5) to analyze if the student's level of motivation to engage in e-learning is correlated with the level of their digital competencies and skills. Analysis of previous research will provide an overview of the issues and benefits that arise with e-learning and students' motivation. It is certain that there is no universal conclusion when it comes to investigating which type of learning, traditional or e-learning, is the best for motivating students to engage. On the one hand, e-learning is performed using different digital tools that bring diversity to the learning process, but it is performed remotely. On the other hand, traditional learning in classrooms has the advantage in the form of direct contact between students and teachers, but it is limited regarding the tools that are used in teaching. In order to explore the attitude of students in Croatia when it comes to motivation during e-learning, empirical research among students in the field of economics and business was conducted from November 2021 to January 2022. A total of 1.298 responses were collected from high school and university students. It is expected that there is a difference regarding the level of motivation between high-school students and university students, indicating that e-learning is more appropriate for the university level of education.

Key words: *e-learning, motivation, economics, business, Croatia.*

1. Introduction

According to Han and Yin (2016), motivation has been generally defined as a drive that moves people to do something. According to the University of Melbourne's official website (2023), motivation "feels good, energising, and drives us to get things done". We can distinguish positive and negative motivation. Positive motivation can be seen in the student's awareness that by studying he/she will learn something new that will bring advantages to him/her later in his/her professional life. Negative motivation for study can be seen in avoidance of the parents' disappointment if their child does not enter college. Both positive and negative motivations can be effective in different circumstances. Nevertheless, it is easier to be guided with positive than negative motivation which includes avoidance of negative outcomes.

Teachers at all levels of education face challenges when it comes to motivating students to actively participate in the learning process. These challenges certainly depend to some extent on the field of study, but also on the learning environment and tools used in the teaching process. As the biggest challenge in the implementation of e-learning, the stimulation of user motivation stands out. Therefore, the main topic of this paper is related to exploring students' motivation during e-learning. In order to answer the key research questions, the goals of the paper are: 1) to analyze possible reasons for enrolling in business school, 2) to analyze previous research regarding challenges with motivating students during e-learning, as well as issues that have been encountered by both teachers and students, 3) to investigate if students are more motivated during traditional learning or e-learning, 4) to explore if there is a difference between the level of motivation of high-school students when compared to university students, and 5) to analyze if the student's level of motivation to engage in e-learning is correlated with the level of their digital competencies and skills. While the first 2 goals were based on the secondary data, the remaining three goals were achieved based on the results of empirical research conducted among students in the field of economics and business with the aim of exploring the attitude of students in Croatia when it comes to motivation during e-learning. The paper used parts of the comprehensive research that was carried out within the Erasmus+ strategic partnership project called "Challenges and practices of teaching economic disciplines in era of digitalization."

2. Literature review

2.1. Analysis of possible reasons for enrolling in business school - the case of the best business schools in the world

In order to investigate the motives for studying business and economics, the websites of the top 10 business schools in the world were analysed. The ranking of business schools differs depending on which institution/organization conducts the ranking and which criteria it uses for ranking purposes. The top 10 business schools in the world for the year 2023 according to the CEOWorld magazine are presented in Table 1. Financial Times also publishes business school rankings (Financial Times, 2023) as well as Forbes for Business schools in the USA (Forbes, 2023). We analysed the reasons why students enroll in a particular business school mentioned above. To collect and identify the main reasons/motives to enroll in business school, we analysed the websites of the top 10 business schools in the world. In addition to the mentioned schools, the potential motives for enrolling in the Faculty of Economics and Business Zagreb, the largest and oldest economic education faculty in Croatia, were also analysed.

Table 1: Top 10 business schools in the world in 2023

No.	Business school
1.	The Wharton School (USA, University of Pennsylvania)
2.	London Business School (Great Britain)
3.	MIT Management Sloan School (Great Britain, University of Cambridge)
4.	Harvard Business School (USA, Harvard University)
5.	Saïd Business School (Saïd Business School, University of Oxford)
6.	Columbia Business School (USA, Columbia University)
7.	Stanford Graduate School of Business (USA)
8.	INSEAD The Business School for the World (France/Singapore)
9.	Haas School of Business (USA, University of California)
10.	Yale School of Management (USA, Yale University)

Source: CEOworld, 2023

The Warton School, University of Pennsylvania in the USA, a school with the highest ranking in the sphere of high education in business on its official website notes ten reasons why to come to Warton (Warton, 2023); a tradition of excellence, business and liberal arts, a dynamic and supportive community, access to world-renowned professors, flexible curriculum, Pen is affordable, learning leadership through teamwork, strong recruitment, more options later and global alumni network. All the above actually represents the motivation for studying at this business school. London Business School (LBS, 2023) for all its MBA programs emphasizes the importance of career impact and its role in preparing for the career success of its students. They also provide on its website the possibility to download the employment report of its students. According to the LBS website, 91% of its 2022 MBA class accepted an offer of employment within three months of graduating. MIT Management Sloan School motivates students to apply with the claim that MIT is a different kind of management school. It puts focus on the intersection of business and technology and explores the future of work. MIT Management Sloan School notes on its website that it launches companies that kick-start local economies in the developing world and retool systems to make health care work better and to engage people around the world in addressing climate change (MIT Management Sloan School, 2023). Harvard Business School, Harvard University on its official website notes the five reasons for attending business school; (1) a person wants to be an effective leader, (2) a person wants to increase his/her job prospects and earning potential, (3) person wants to gain a big-picture perspective on the business world, (4) a person wants to pivot his/her career, and (5) a person wants to make an impact through business (HBS - Harvard Business School, 2023). According to HBS, the MBA program helps students to build the necessary skills that include emotional intelligence, strong communication, empowering others, self-awareness, financial literacy, resilience, integrated problem-solving, and thoughtful decision-making. Saïd Business School, University of Oxford (SBS) for each study program notes the fundamental and real-world skills that students will achieve. Moreover, it provides a nice college experience. Oxford colleges are small, intimate communities, where students meet academics and fellow students from around the world (Saïd Business School, 2023). SBS official website provides employment reports for each year with the average salaries of its students. A high employment rate (for year 2020-21 86 % of students were employed after three months from graduation) together with high average salaries can be a good motivation for enrolling in this business school. Columbia Business School, Columbia University (CBS) in its value statement as one of the key advantages of the school states the “developing innovative ideas and inspiring leaders that transform the world, Columbia Business School (CBS) is committed to the principles of diversity, equity, and inclusion” (Columbia Business School, 2023). Diversity, equity, and

inclusion are very important principles of this business school with special emphasis on increasing gender and race diversity as well as inclusion of LGBTQ+ students. This is something that maybe most strongly diverse this business school from others and could be reasons or motivation for students to enroll in this school. CBS since 2019 publishes on its website an annual report on diversity, equity, and inclusion. CBS note also its other goals that include driving the digital transformation of business, leading entrepreneurship and innovation, elevating the role of business in society, inventing the future of finance, powering climate, sustainability, and energy transformation, STEM designated programs, a collaboration of students and staff on numerous innovation projects etc. Also, one of the reasons for choosing this school can be the newly built Manhattanville campus in an excellent location. Stanford Graduate School of Business (SGSB) as well as Columbia Business School publishes diversity, equity and inclusion report paying great attention to the equality of students at all levels. This school provides to students experimental learning and as key reasons for enrolling the MBA program at this school notes; expand your mindset, think innovatively (think boldly), built your community, lead from the heart and gain the knowledge, skills, and confidence to define future (Stanford Graduate School of Business, 2023). INSEAD The Business School for the World is the second business school in world according to the Financial Times 2023 ranking. INSEAD is one of the world's leading and largest graduate business schools, it offers participants a truly global educational experience. With locations in Europe (France), Asia (Singapore), the Middle East (Abu Dhabi) and North America (San Francisco) INSEAD brings together people, cultures, and ideas to develop responsible leaders who transform business and society (INSEAD, 2023). Diversity, equity, and inclusion are the foundational value of INSEAD. INSEAD is one of the world's leading and largest graduate business schools with five campuses and centres around the globe and offers a variety of graduate programs. Haas School of Business (HSB), University of California is the second oldest business school in the United States and is known for its two faculty members that receive the Nobel Prize in Economics. Innovation, career success, leadership development, experimental learning, global fluency, concurrent degree programs, diversity and inclusion, and career paths are some of the pillars of this school. HSB publishes an employment report that includes statistics on the employment of its students (percentage of employed students and on its average salaries), an industry report, function report, and top employers. The good statistics could be one of the reasons for enrolling in this school. Yale School of Management, Yale University has a diversity of academic programs. Innovations are in the seam of this school. Yale School of Management even has the Office of Inclusion and Diversity (OID) which is the centralized hub for advancing diversity, equity, and inclusion at SOM.

In Croatia, the oldest institution of higher education in economics and business is the Faculty of Economics & Business, University of Zagreb. The Faculty of Economics & Business - Zagreb provides study programs at all levels: professional undergraduate and graduate specialist studies, integrated undergraduate and graduate university studies, then undergraduate and graduate university study programs in English, as well as postgraduate specialist and doctoral study programs in the field economics and business economics, and economics and global security. Faculty of Economics & Business - Zagreb is the holder of national accreditation and three international accreditations, EQUIS, AACSB Business accreditation at the institution level, and EFMD Programme Accreditation for the university study program in English bachelor's degree in business.

Motives to study business and economics can be very diverse. Students who want to study business and economics can also be guided by different motives when choosing the faculty to which they will enroll. Analysis of the best-ranked higher business schools in the field of

business in the world shows that motivation for enrolling in business school can be: high employment of students with a degree in business and economics, earning potential, becoming an effective leader in the business environment, getting the bigger picture perspective on the business world, to make an impact through business, nice college experience and interaction with other students from around the world, becoming an entrepreneur, etc. The motive for studying can also be the expectations of parents and the social community. On the other hand, the motives for enrolling in a specific business school may include:

- quality of the degree programs
- concurrent degree programs
- diverse study programs
- renewed professors - Nobel Prize winners
- cost and financing – scholarships
- international accreditations
- ranking at the world level
- tradition of institution/school
- possibility for connections with companies and global connections
- high employment rate
- employment opportunities and opportunities after studies
- possibility of innovations
- respect for principles of diversity, equity, and inclusion
- development of competencies, knowledge, and skills
- development of entrepreneurship skills
- average annual salary after the degree
- other.

Each business school lists why students should study at that business school on its website. In this context at most colleges, great attention is paid to the quality and diversity of study programs, orientation towards innovations and the future, global connectivity, acceptance of diversity based on inclusion, high employability, and opportunities for good earnings. Finally, it is important to note that business school ranking criteria can be an element for motivating individual students to enroll in business school, but motivation is a complex construction with many different and interdependent variables that define it. Moreover, something that could be a motivating element to enroll in certain business schools for one person can, at the same time, be a demotivating element for some other person. It can be concluded that motivation for enrolling in business school is very complex to determine and it is the result of many different factors.

2.2. Challenges with motivating students during e-learning

Before paying due attention to the potential challenges with motivating students during e-learning, what is meant by the term e-learning will be defined. There are many interpretations of the definition of e-learning, and they mostly include learning that is supported by information technologies with the use of the Internet, i.e. “electronically enabled learning”. Maatuk et al. (2022, p. 22-23) define e-learning as the “formal learning system with the help of electronic resources that provides learners with information or expertise utilizing technology.” It can also be described as the "acquisition of competencies, knowledge, and skills through electronic media, such as the Internet or a company Intranet" (Oxford Reference). According to Nehme (2010, p. 223), approaches to e-learning differ, and include the "use of online resources, the implementation of formal or informal assessment, and the encouragement of interaction and

collaboration between students.” Although, from a technical point of view, the definitions differ minimally, nevertheless, essentially all approaches to defining e-learning have one thing in common, which is the use of information technology in learning processes (Nehme, 2010). Synonyms that are often used for the term "e-learning" include "online learning", "web-based learning", "internet-based learning", "distance learning", "digital learning", “virtual learning” and similar (Maatuk, et al., 2022; Aboagye, et al., 2021; Muslimin and Harintama, 2020; Shahmoradi et al., 2018; Naresh et al., 2015, Nehme, 2010, Andersson and Grönlund, 2009).

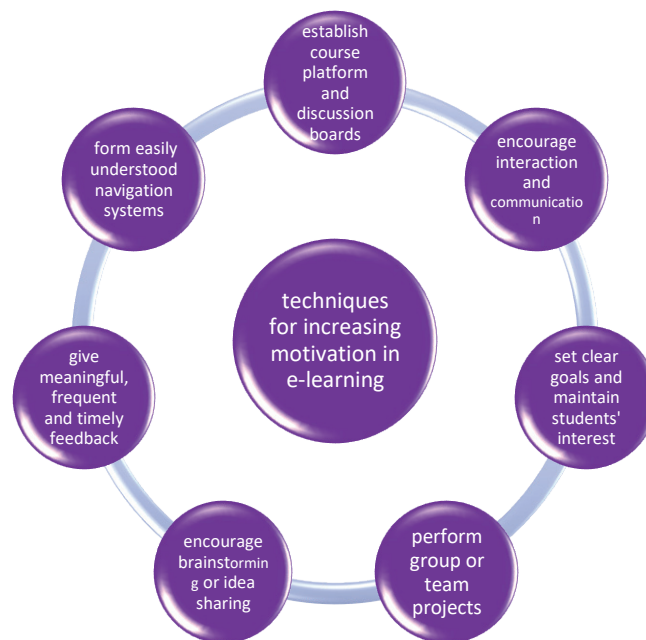
The key question of this paper is what are the challenges with motivating students in e-learning? However, in order to answer this question, first of all, what are the general challenges with the implementation of e-learning will be identified. In connection with this, an overview of research will be given that confirms that the motivation of students in remote teaching is one of the biggest challenges that teachers face in e-learning.

Andersson and Grönlund (2009) categorized e-learning challenges into 4 groups: (1) course challenges regarding content, design, and delivery issues; (2) challenges related to the characteristics of the teacher and/or student; (3) technological challenges and (4) contextual challenges namely organizational, cultural and societal challenges. Naresh et al. (2015, p. 261) consider challenges related to e-learning between developed and developing countries, where the biggest challenge in developed countries is found in the lack of motivation and active participation on the part of the users. On the other hand, in developing countries, lack of technology or infrastructure and lack of governmental support has been emphasized. Tîrziu and Vrabie (2015, p. 378) observe major challenges in relation to e-learning in developing countries where the solution to these challenges lies in greater support and publication of guidelines for students, so-called support systems that would enable students to navigate courses more easily. Also, the flexibility factor, as desirable as it is, requires answers to the question of to what extent students can independently choose when they will be examined and also whether they can choose the medium of content delivery. It can be concluded that the challenges are mostly the same. However, according to Andersson and Grönlund (2009) “in developing countries, more papers focus on access to technology and context whereas in developed countries more papers concern individuals.”

Most research on the topic of challenges related to the implementation of e-learning can be found in the pandemic/post-pandemic period when the sudden transition from traditional teaching methods to teaching in a virtual or online environment was especially emphasized (Aboagye et al., 2021; Muslimin and Harintama, 2020; Maatuk, et al., 2021; Lukas and Yunus, 2021; Yahiaoui, et al., 2022). Of course, the most frequently mentioned challenges are precisely the problems with technology, either due to a weak Internet connection, or due to the lack of IT equipment and the absence of technical support that would enable uninterrupted teaching in an online environment during a pandemic, and especially a lockdown. In addition to the problems associated with information and communication tools, Shahmoradi, et al. (2018) point out problems with the implementation and monitoring of necessary policies and guidelines to resolve possible problems during the implementation of e-learning as well as cultural challenges, i.e. differences when using the e-learning system which in the end can influence communication, interaction, and participation through media technologies. Aboagye et al. (2021) explored the challenges faced by students in tertiary institutions in online learning in the era of the pandemic. The research results suggest that the most significant challenges for students are accessibility issues, followed by social issues, lecturer issues, academic issues, and generic issues. From the teacher's perspective, e-learning during Covid-19 was quite “effective with various limitations such as teachers’ readiness to adopt online teaching, accessibility of

mobile phones and internet connectivity, classroom management in terms of low students' participation and assessment" (Lukas and Yunus, 2021). In addition to the challenges, one should not ignore the many advantages that e-learning brings, primarily in the context of flexibility and the possibility of attending classes from any part of the world, especially during the spread of the Covid-19 virus. The benefits of this way of teaching can also be recognized through the development of digital skills of both students and teachers, and this is certainly one of the biggest advantages of introducing e-learning into the educational processes.

Yahiaoui et al. (2022) point out that e-learning is "a key strategy in the course of higher education to improve the results of the educational process and stimulate student motivation." "Teachers, students, and other stakeholders can perceive the importance of motivation as a key trigger of student creativity with the aim of overcoming learning challenges in various contexts" (Muslimin and Harintama, 2020). It has already been emphasized that the individual characteristics of a person often influence the success of e-learning, where the motivation of the individual student comes to the fore. Abou El-Seoud et al. (2014) emphasize self-motivation as one of the crucial factors for students' success in the e-learning process. According to the study by Harandi (2015), a significant relationship between e-learning and students' motivation was established, where it was shown that students who participate in e-learning are more often motivated, and then they are probably more willing to be more engaged, which has a positive effect in achieving learning objectives. In addition, this thesis was confirmed by the study of Naresh et al. (2015) where it was shown that "motivation of students and well-trained tutors are key factors of the successful implementation of e-learning. Since motivation has been shown to be an extremely important factor in the success of e-learning, the question arises as to how it is possible to stimulate motivation among students, especially in an online environment. There are several different types of research on the topic of motivational techniques and models that can be included in e-learning. The most frequently mentioned motivation model is Keller's ARCS model, which includes 4 categories of motivation, namely attention, relevance, confidence, and satisfaction and "it can provide many meaningful benefits to the learning experiences" (Elshareif and Mohamed, 2021). Attention refers to achieving curiosity and keeping the interest of the student. Another important element of the model is relevance, which aims to show students the relevance of topics by connecting existing practice with the theory they are studying. It is also always a good idea to invite interesting guest lecturers who can confirm the relevance of the content studied in the course. Confidence is strengthened by establishing clear learning goals and encouraging students' independence in their work. Satisfaction is achieved by giving timely and meaningful feedback and rewarding their presence and active engagement. See more on this in Yahiaoui et al., 2022; Elshareif and Mohamed, 2021; Raja et al., 2016; Nehme, 2010; Hodges, 2004. To summarize, one of the first steps of successful work in an e-learning environment is certainly the establishment of good communication channels at the very beginning of work in the form of clear goals and clear communication of content, working methods, and expectations from students. Encouraging communication and joint interaction through the brainstorming method, joint group tasks and projects certainly enable interaction between students and maintain their interest, which has multiple benefits in the online mode of operation, where communication is one of the most important challenges and obstacles. Finally, one of the most important motivational techniques is certainly giving clear, meaningful, and timely feedback in terms of praise for a job well done but also stating the ways to improve. All previously mentioned techniques for increasing motivation in e-learning are presented systematized and graphically in Figure 1.

Figure 1: Techniques for increasing motivation in e-learning

Source: authors according to Bonk (2002) cited by Smith (2008); Nehme (2010); Hodges (2004); Bennet and Monds (2008); Raja et al. (2016) Filgona et al. (2020) and Yahiaoui et al. (2022)

The analysis of previous research provides an overview of the problems and benefits that arise in e-learning and student motivation. It can be said that there is no ideal universal solution when it comes to researching which type of learning, traditional or e-learning, is best for motivating students to engage. On the one hand, e-learning is performed using various digital tools that bring diversity and dynamism to the learning process, but it is performed remotely, which has its drawbacks. On the other hand, traditional classroom learning has the advantage of direct contact between students and teachers but is limited in terms of digital tools used in teaching. Below are presented the results of empirical research conducted among students in the field of economics and business with the aim of exploring the attitude of students in Croatia when it comes to motivation during e-learning.

3. Methodology

Regarding research goals 2-4 that have been elaborated in the introduction, we conducted empirical research among students in the field of economics and business. The questionnaire was prepared and distributed within the DIGI4Teach Erasmus+ project¹. Although the research² was more extensive, the target groups whose attitudes are analysed within this paper are university and high school students in Croatia. Their responses were collected through Google Forms from November 2021 to January 2022, resulting in a total of 1.298 responses.

¹ DIGI4Teach is an Erasmus+ project entitled „Challenges and practices of teaching economic disciplines in era of digitalization“. More information about the project is available at: <https://digi4teach.net.efzg.hr/>.

² The DIGI4Teach project participants have set a questionnaire based on several similar studies (Babić (2011), Carretero et al. (2018), Elsalem et al. (2021), Ferrari (2013), Nikolopoulou et al. (2021), Požgaj and Knežević (2007), Sáiz-Manzanares et al. (2021), Žuvić et al. (2016)), adding their relevant questions.

To explore the level of students' motivation during e-learning and to compare it with their motivation during traditional learning (2nd research goal), respondents were asked to use a 5-point Likert scale and rate their agreement with the statements presented in Table 2. Results were then analysed by calculating measures of descriptive statistics in order to investigate central tendency and dispersion among respondents.

Table 2: Statements from the questionnaire related to motivation, their codes, and possible answers

No.	Statement	Code	Possible answers
1	E-learning improves communication and activity in the classroom because it reduces the fear and shame of public speaking	STAT_COMMUNICATION	1 - 5 (1 - I completely disagree, 5 - I completely agree)
2	Students with low motivation find it difficult to achieve the set goals of e-learning because they do not have the feeling that someone controls them and encourages them to work	STAT_CONTROL	1 - 5 (1 - I completely disagree, 5 - I completely agree)
3	Digital tools significantly enhance the curiosity in the class and make the teaching more interesting	STAT_CURIOSITY	1 - 5 (1 - I completely disagree, 5 - I completely agree)
4	E-learning enhances my engagement and creativity	STAT_ENGAGEMENT	1 - 5 (1 - I completely disagree, 5 - I completely agree)
5	E-learning motivates students to interact with each other	STAT_INTERACTION	1 - 5 (1 - I completely disagree, 5 - I completely agree)
6	E-learning is not as motivating as traditional learning	STAT_NOT MOTIVATING	1 - 5 (1 - I completely disagree, 5 - I completely agree)
7	E-learning requires my greater self-motivation	STAT_SELF-MOTIVATION	1 - 5 (1 - I completely disagree, 5 - I completely agree)
8	I am motivated to use digital tools as support to traditional learning	STAT_USE DIG TOOLS	1 - 5 (1 - I completely disagree, 5 - I completely agree)
9	E-learning further boosts my motivation to work	STAT_WORK	1 - 5 (1 - I completely disagree, 5 - I completely agree)

Source: Authors

As for the 3rd research goal, related to exploring if there is a difference between the level of motivation of high-school students when compared to university students, we compared medians for all nine statements from Table 2. Since the analysed data was ordinal, the equality of medians was tested using a non-parametric test – Mann-Whitney. The initial expectation was that university students would be generally more motivated to participate in e-learning since there are older, have more obligations to balance (e.g., jobs or internships), and should have more self-discipline.

The 4th research goal was to analyse if the students' level of motivation to engage in e-learning is correlated with the level of their digital competencies in terms of proficiency and skills. Digital competencies that were the focus of the research are listed in Table 3. Respondents were asked to self-assess both their proficiency (knowledge) level, as well as their skills. Their overall level of self-assessed digital competency was approximated by calculating sums (variables SUM_KNOWLEDGE and SUM_SKILLS) and means of their answers (variables AVERAGE_KNOWLEDGE and AVERAGE_SKILLS). These variables were then compared to their responses related to statements listed in Table 2. With the aim of exploring the direction and strength of correlation between these two sets of variables, we calculated the Person

correlation coefficient. Since the lack of digital knowledge or skills may represent an obstacle for students to actively participate in e-learning, we expected that their motivation would be positively correlated with their self-assessed level of digital competencies.

Table 3: Digital competencies from the questionnaire, their codes, and possible answers

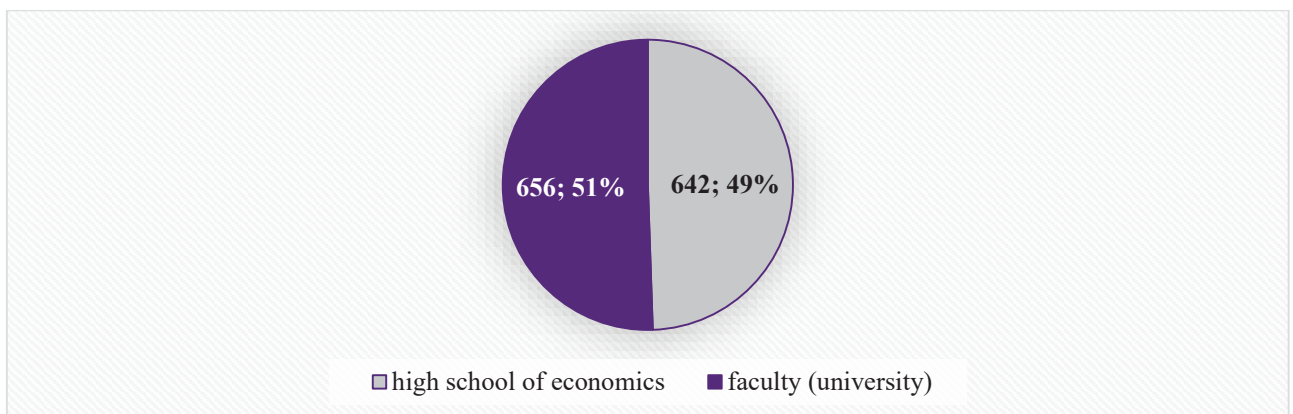
No.	Digital competency	Proficiency level (knowledge) - code	Skills level - code	Possible answers
1	Browsing, searching and filtering data, information, and digital content	BROWSING_KNOW	BROWSING_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
2	Data, information, and digital content management	DATA MAN_KNOW	DATA MAN_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
3	Data, information, and content sharing via digital technologies	DATA SHARE_KNOW	DATA SHARE_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
4	Interacting (collaboration) through digital technologies	INTERACT_KNOW	INTERACT_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
5	Developing digital content	DEVELOP_KNOW	DEVELOP_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
6	Programming	PROGRAM_KNOW	PROGRAM_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
7	Protecting devices	PROTECT DEV_KNOW	PROTECT DEV_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
8	Protecting personal data and privacy	PROTECT DATA_KNOW	PROTECT DATA_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
9	Solving technical problems	TECHNICAL_KNOW	TECHNICAL_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced
10	Creative problem solving by using digital technologies	CREATIVE_KNOW	CREATIVE_SKILL	1 - Foundation, 2 - Intermediate, 3 - Advanced

Source: Customized by the authors based on Carretero, S. et al. (2018)

4. Results and discussion

Collected responses are almost equally distributed among two groups of respondents, as presented in Figure 2. Students from high schools of economics account for 49 % of the total number of responses, while the remaining 51 % is related to faculty students. The majority of the educational institutions whose students participated in the research are located in Zagreb.

Figure 2: Structure of respondents according to the level of education



Source: Authors

Since the aim of the paper was to analyze motivation for e-learning applied in the field of economics and business, a questionnaire was distributed to high schools of economics and faculties/universities from the same field. Most of the students that participated in the research were primarily interested in tourism (25 %), followed by accounting, finance, and trade (Table 4).

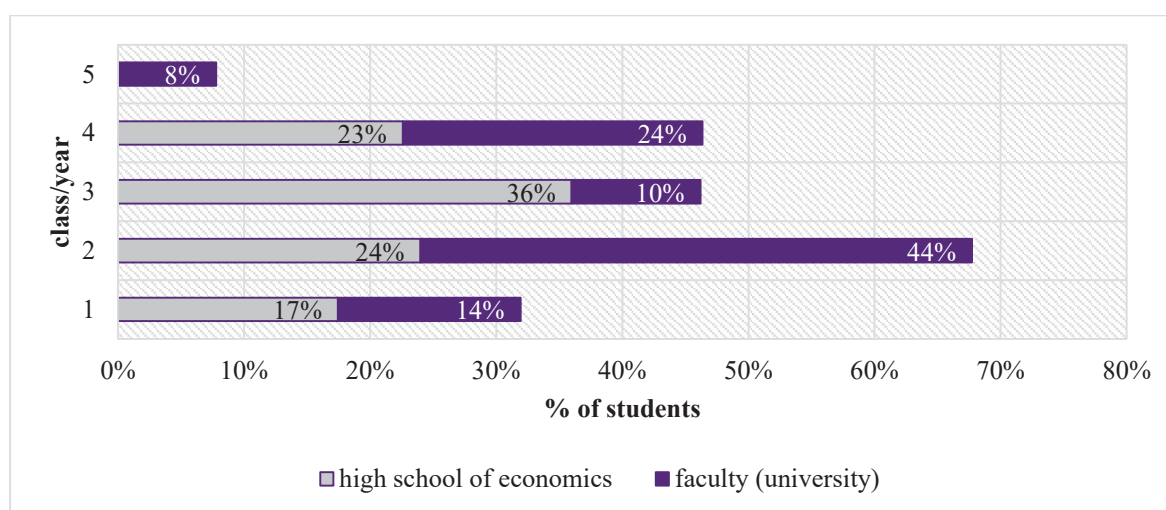
Table 4: Structure of respondents according to the main interest area

Main interest area	No.	%
finance	255	20%
accounting	277	21%
tourism	329	25%
trade	221	17%
other - marketing	107	8%
other - management	25	2%
other - informatics	13	1%
other - economy (e.g., microeconomy, macroeconomy)	6	0%
other - multiple courses	10	1%
other - general courses (non-economic)	19	1%
other - management	4	0%
other - entrepreneurship	5	0%
other - marketing	3	0%
other - controlling	1	0%
other - law	1	0%
other - unknown	16	1%
other - informatics	1	0%
other - statistics and quantitative methods	2	0%
other - business	2	0%
other - general courses (non-economic)	1	0%
Total	1.298	100%

Source: Authors

As for the current level of education in the form of class/year, most high school students are in the 3rd class, while most faculty students are in the 2nd year of their study program (Figure 3). It is important that students from all classes/years are represented in the sample.

Figure 3: Structure of respondents according to current class/year in high school/university



Source: Authors

To analyze the level of students' motivation, engagement, interaction, and curiosity during e-learning and using digital tools, measures of descriptive statistics were calculated based on their answers regarding nine statements presented in Table 2. Results are available in tables 4.-8. The statement most relevant to the 2nd research question is the statement coded as STAT_NOT_MOTIVATING in Table 6, which states that “e-learning is not as motivating as traditional learning”. Results have shown that 46 % of all respondents mostly or completely agree with this statement, 29 % mostly or completely disagree, while the remaining 25 % neither agree nor disagree (Table 8). This result shows that a significant portion of students have issues with motivation during e-learning when compared to traditional learning. Contrary to initial expectations, these issues are slightly more pronounced with faculty students than with high school students. The mean of faculty students' answers is higher, as well as the proportion of students that mostly or completely agree with the statement (48 % for faculty students vs. 44 % for high school students). In order to better understand why students generally find e-learning less motivating than traditional learning, other statements must be analyzed.

Table 5: Descriptive statistics for statements 1-3 (HS = high school students, FAC = faculty students)

	FAC_STAT_COMMUNICATION	HS_STAT_COMMUNICATION	FAC_STAT_CONTROL	HS_STAT_CONTROL	FAC_STAT_CURIOSITY	HS_STAT_CURIOSITY
Mean	3.28	3.29	3.80	3.51	4.10	3.82
Median	3	3	4	4	4	4
Maximum	5	5	5	5	5	5
Minimum	1	1	1	1	1	1
Std. Dev.	1.39	1.43	1.17	1.34	1.06	1.28
Skewness	-0.29	-0.25	-0.73	-0.44	-1.06	-0.81
Kurtosis	1.86	1.77	2.74	2.03	3.39	2.53
Sum	2.154	2.114	2.491	2.255	2.692	2.453
Obs.	656	642	656	642	656	642

Source: Authors

Table 6: Descriptive statistics for statements 4-6 (HS = high school students, FAC = faculty students)

	FAC_STAT_ENGAGEMENT	HS_STAT_ENGAGEMENT	FAC_STAT_INTERACTION	HS_STAT_INTERACTION	FAC_STAT_NOT_MOTIVATING	HS_STAT_NOT_MOTIVATING
Mean	3.02	3.29	2.86	3.16	3.43	3.22
Median	3	3	3	3	3	3
Maximum	5	5	5	5	5	5
Minimum	1	1	1	1	1	1
Std. Dev.	1.31	1.31	1.30	1.32	1.36	1.42
Skewness	-0.05	-0.23	0.13	-0.10	-0.32	-0.19
Kurtosis	1.95	1.97	1.99	1.94	1.90	1.77
Sum	1.983	2.113	1.879	2.027	2.251	2.065
Obs.	656	642	656	642	656	642

Source: Authors

Table 7: Descriptive statistics for statements 7-9 (HS = high school students, FAC = faculty students)

	FAC_STAT_SELF -MOTIVATION	HS_STAT_SELF- MOTIVATION	FAC_STAT_US E_DIG_TOOLS	HS_STAT_USE _DIG_TOOLS	FAC_STAT_W ORK	HS_STAT_W ORK
Mean	3.73	3.39	4.07	3.74	2.94	3.16
Median	4	3	4	4	3	3
Maximum	5	5	5	5	5	5
Minimum	1	1	1	1	1	1
Std. Dev.	1.21	1.34	1.04	1.32	1.31	1.36
Skewness	-0.67	-0.32	-1.00	-0.74	-0.01	-0.17
Kurtosis	2.52	1.96	3.38	2.39	1.94	1.88
Sum	2.446	2.176	2.673	2.399	1.927	2.028
Obs.	656	642	656	642	656	642

Source: Authors

Negative sides of motivation during e-learning are especially evident from statements STAT_CONTROL (Table 5 and Table 8) and STAT_SELF-MOTIVATING (Table 7 and Table 8). Namely, 57 % of students agree (mostly or completely) with the statement that “students with low motivation find it difficult to achieve set goals of e-learning because they do not have the feeling that someone controls them and encourages them to work” (coded as STAT_CONTROL). This statement is related to the statement STAT_SELF-MOTIVATING, which states that “e-learning requires my greater self-motivation”. When observing the total sample, 55 % of respondents completely or partly agree with this statement (Table 8). It is understandable that e-learning requires more self-control and self-motivation from students but it also offers them more flexibility and diversity in terms of materials and methods used. The conclusion that can be derived from this is that students are still not independent enough to be motivated by these advantages but are rather unmotivated by the lack of strict control from teachers which they perceive as a disadvantage of e-learning. This is also the reason why they generally prefer traditional learning. It is interesting that this is again more of an issue for faculty students than for high school students, which is evident from the means of their answers, as well as the proportion of respondents that agree with the two statements analyzed.

Responses to statements STAT_COMMUNICATION, STAT-ENGAGEMENT, STAT_INTERACTION and STAT_WORK are very dispersed, which is why no general conclusion regarding these statements can be reached. For example, 35 % of students agree that “e-learning motivates students to interact with each other” (coded as STAT_INTERACTION). On the other hand, 36 % of students disagree with this statement (Table 8). The situation is similar with statements STAT_COMMUNICATION (“e-learning improves communication and activity in the classroom...”), STAT_ENGAGEMENT (“e-learning enhances my engagement and creativity”) and STAT_WORK (“e-learning further boosts my motivation to work”). It points to a conclusion that a portion of students are more encouraged to communicate, engage, interact and work in an e-learning environment, potentially due to reduced fear of public speaking in person. However, a significant portion of students have problems with communicating and interacting. Reasons for this may be again found in less control from teachers, but also in the social distance that is difficult to overcome when using digital video platforms and other digital tools.

Despite certain aspects that cause issues with motivation during e-learning, it is encouraging that most of the respondents (69 %) agree with the statement that “digital tools significantly enhance the curiosity in class and make the teaching more interesting” (coded as

STAT_CURIOSITY). This shows that students are interested in using digital tools for the purpose of learning. However, they prefer to do so only as a support to traditional learning, which is evident from a percentage of students (68 %) that agree with the statement STAT_USE DIG TOOLS (Table 8), means and median of their answers (Table 7). This once again confirms that students are not ready to completely replace traditional learning with e-learning but are open to innovative methods of teaching and the use of digital tools in physical classrooms.

Table 8: Frequency of answers for statements 1-9 (HS = high school students, FAC = faculty students)

	STAT_COM MUNICATIO N	STAT_ CONRO L	STAT_C URIOSIT Y	STAT_ENG AGEMENT	STAT_INT ERACTIO N	STAT_NOT MOTIVATIN G	STAT_SELF- MOTIVATIO N	STAT_USE DIG TOOLS	STAT_ WOR K
1	16%	8%	5%	14%	17%	14%	9%	6%	18%
2	14%	10%	8%	17%	19%	14%	12%	7%	16%
3	23%	25%	18%	28%	29%	25%	24%	19%	28%
4	19%	23%	24%	21%	17%	17%	23%	26%	20%
5	28%	34%	45%	20%	18%	29%	31%	42%	18%
Σ	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors

As for the 3rd research question, the aim was to explore if there is a difference between the level of motivation of high-school students when compared to university students. Results of the Mann-Whitney test of equality of medians are presented in Table 9. It is evident that the medians are statically significantly different for all statements (at 1 % significance), except for the statement STAT_COMMUNICATION. First of all, this means that it was confirmed that university students assessed at a higher rate that e-learning is not as motivating as traditional learning and that this difference is statistically significant. Such a result is contrary to initial expectations, which were based on the assumption that e-learning is better suited for higher levels of education, due to the higher independence and self-motivation of older students. Second, this also means that faculty students and high school students also differ regarding their opinions on other statements. Statistically, a significantly higher percentage of faculty students (when compared to high school students) agree that: 1) students with low motivation find it difficult to achieve the set goals of e-learning due to lower control and encouragement (STAT_CONTROL), 2) e-learning requires greater self-motivation (STAT_SELF-MOTIVATION), 3) digital tools enhance curiosity (STAT_CURIOSITY), and 4) they are motivated to use digital tools as support to traditional learning (STAT_USE DIG TOOLS). On the other hand, a statistically significantly higher percentage of high school students (when compared to faculty students) agree that: 1) e-learning enhances engagement and creativity (STAT_ENGAGEMENT), 2) e-learning motivates students to interact with each other (STAT_INTERACTION), and 3) e-learning boosts motivation to work (STAT_WORK). These results may suggest that faculty students are maybe more pronouncing the disadvantages of e-learning, while high school students are more aware of the advantages, which then causes differences in their motivation during e-learning.

Table 9: Test of equality of medians – high school students vs. faculty students

Statement	Mann-Whitney value	P-value
STAT_COMMUNICATION	0.23	0.8199
STAT_CONTROL	3.49	0.0005***
STAT_CURIOSITY	3.28	0.0010***
STAT_ENGAGEMENT	3.56	0.0004***
STAT_INTERACTION	3.89	0.0001***
STAT_NOT MOTIVATING	2.59	0.0095***
STAT_SELF-MOTIVATION	4.40	0.0000***
STAT_USE DIG TOOLS	3.75	0.0002***
STAT_WORK	2.93	0.0034***

Note: *** statistically significant at 1%.

Source: Authors

After analyzing if the level of education affects the motivation of students during e-learning, the 4th research question was aimed at analyzing if the students' level of motivation to engage in e-learning is correlated with the level of their digital literacy. Students were asked to self-assess both their proficiency (knowledge) and skills regarding 10 digital competencies listed in Table 3. These competencies ranged from simple (e.g., browsing, searching and filtering data, information, and digital content) to more complex (e.g., programming). Depending on their self-assessed level of expertise, respondents could choose between levels 1-3. In order to approximate the overall or general digital literacy, we calculated sums and means of their responses, therefore creating variables AVERAGE_KNOWLEDGE, AVERAGE_SKILLS, SUM_KNOWLEDGE and SUM_SKILLS). Measures of descriptive statistics for those variables are presented in Table 10 and Table 11. It can be seen that means and medians of these variables suggest the following: 1) students' self-assessed knowledge is higher than their skills, and 2) high school students generally self-assessed their knowledge and skills at a higher level than faculty students.

Table 10: Descriptive statistics for variables AVERAGE_KNOWLEDGE and AVERAGE_SKILLS

	AVERAGE_KNOWLEDGE (all)	AVERAGE_KNOWLEDGE (faculty)	AVERAGE_KNOWLEDGE (high school)	AVERAGE_SKILLS (all)	AVERAGE_SKILLS (faculty)	AVERAGE_SKILLS (high school)
Mean	1.79	1.78	1.81	1.71	1.71	1.72
Median	1.80	1.75	1.80	1.70	1.70	1.70
Maximum	3	3	3	3	3	3
Minimum	1	1	1	1	1	1
Std. Dev.	0.46	0.47	0.45	0.45	0.44	0.46
Skewness	0.29	0.35	0.23	0.38	0.45	0.33
Kurtosis	2.62	2.53	2.74	2.82	2.97	2.69
Sum	2,324.40	1,164.60	1,159.80	2,221.80	1,118.90	1,102.90
Obs.	1298	656	642	1298	656	642

Source: Authors

Table 11: Descriptive statistics for variables SUM_KNOWLEDGE and SUM_SKILLS

	SUM_KNOWLEDGE (all)	SUM_KNOWLEDGE (faculty)	SUM_KNOWLEDGE (high school)	SUM_SKILLS (all)	SUM_SKILLS (faculty)	SUM_SKILLS (high school)
Mean	17.91	17.75	18.07	17.12	17.06	17.18
Median	18.00	17.50	18.00	17.00	17.00	17.00
Maximum	30	30	30	30	30	30
Minimum	10	10	10	10	10	10
Std. Dev.	4.61	4.69	4.52	4.49	4.41	4.57
Skewness	0.29	0.35	0.23	0.38	0.45	0.33
Kurtosis	2.62	2.53	2.74	2.82	2.97	2.69
Sum	23,244.00	11,646.00	11,598.00	22,218.00	11,189.00	11,029.00
Obs.	1298	656	642	1298	656	642

Source: Authors

Pearson correlation coefficients for pairs of statements and variables approximating digital literacy are presented in Table 12. All correlation coefficients are positive but relatively small. If we assume that the correlation coefficient between 1 – 0,1 represents negligible correlation, while the values between 0,1 and 0,39 indicate weak correlation (Schober et al., 2018, 1765), we can see that the first scenario applies to 5 statements, while the second scenario applies to 4 statements. Namely, it was confirmed that there is a weak positive correlation between variables indicating digital literacy and STAT_ENGAGEMENT, STAT_WORK, STAT_CURIOSITY, and STAT_USE DIG TOOLS. This means that students with higher digital competencies are slightly more curious, motivated to use digital tools, motivated to work in the e-learning environment, and are more engaged and creative during e-learning. However, the correlation between digital literacy and the statement STAT_NOT MOTIVATING is almost equal to zero, indicating that the level of digital literacy is not correlated with the preference between traditional and e-learning.

Table 12: Correlation between level of self-assessed digital competencies and statements related to motivation during e-learning

	STAT_ENGAGEMENT	STAT_WORK	STAT_COMMUNICATION	STAT_NOT MOTIVATING	STAT_INTERACTION	STAT_CURIOSITY	STAT_USE DIG TOOLS	STAT_SELF-MOTIVATION	STAT_CONTROL
AVERAGE_KNOWLEDGE	0.14	0.12	0.08	0.01	0.05	0.11	0.15	0.02	0.03
AVERAGE_SKILLS	0.13	0.10	0.06	0.00	0.06	0.10	0.14	0.03	0.03
SUM_KNOWLEDGE	0.14	0.12	0.08	0.01	0.05	0.11	0.15	0.02	0.03
SUM_SKILLS	0.13	0.10	0.06	0.00	0.06	0.10	0.14	0.03	0.03

Source: Authors

In the end, it should be noted that there are some limitations to the results of the research. Responses were collected during the pandemic, which might affect students' optimism regarding e-learning. In other words, the transition to e-learning at the beginning of the pandemic was sudden, which in some cases did not leave enough time to properly prepare materials and explore digital tools. This means that if the students made their judgement about e-learning primarily based on their experiences during a pandemic, maybe this is partially the reason why the stress-out issues regarding motivation and communication. Moreover, the

second limitation is related to the fact that the digital literacy of students is self-assessed, rather than tested.

5. Conclusion

In the first part of the paper, the potential reasons why students enroll in the study of business and economics were presented by analyzing the ten best-ranked higher business schools in the field of business in the world. According to results, at most colleges, great attention is paid to the quality and diversity of study programs, orientation towards innovations and the future, global connectivity, acceptance of diversity based on inclusion, high employability, and opportunities for good earnings. It can be concluded that motivation for enrolling in business school is very complex and it's the result of many different factors.

The number of research related to e-learning has certainly increased during the pandemic when there was no alternative but to switch from traditional learning in classrooms to distant e-learning. What became evident really quickly is that: 1) e-learning is not equally suitable for all fields of study, and 2) teachers face different challenges when motivating students to participate in e-learning. The field of economics and business can be considered quite rewarding in this sense, i.e., most courses can be partially or completely transferred to e-learning, unlike e.g., medicine. However, it should be noted that the literature review showed that students value social factors as motivational factors when deciding to study business and economics, such as inclusion, dynamic and supportive community. The social aspect is especially challenging during e-learning, which might affect students' motivation.

In order to contribute to the research related to motivation during e-learning, empirical research was conducted on a sample of 1,298 high school and university students enrolled in study programs related to economics and business in Croatia. The main conclusions from the research are: 1) a significant portion of students have issues with motivation during e-learning when compared to traditional learning, 2) issues that decrease motivation during e-learning are related to less control from the teacher and lack of communication while motivating factor is the use of digital tools, 3) university students assessed at a higher rate that e-learning is not as motivating as traditional learning, contrary to initial expectations, and 4) the level of digital literacy is not correlated with the preference between traditional and e-learning. It should be noted that the results of the research were definitely affected by the pandemic since students generally have the most experience with e-learning during the pandemic.

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COMMUNITIES OF PRACTICE AS A WAY TO IMPROVE SERVICE QUALITY IN HIGHER EDUCATION INSTITUTIONS

ABSTRACT

Against the backdrop of growing student enrolment in universities and increasing numbers of higher education institutions, defining, measuring, and assuring quality has become a major concern for higher education institutions (HEIs). Excellence, zero errors, fitness for purpose, transformational threshold, value for money, and improvement have been identified as quality in the context of HE. Here, quality at HE is categorized as educational quality (teaching processes and stakeholder perceptions) and administrative quality (infrastructure and administrative processes). To add value and variety to their HE experiences, students typically participate in some form of Community of practice (CoPs) during the course of their studies, which is a form of organizational learning in which social structures and meanings are continuously negotiated through participation. This paper builds on the theories of social and situated learning and aims to examine the connectedness of student participation in these organizations and perceived service quality of HEIs. To measure the perceived service quality of HEIs, the adapted SERVQUAL model was used with the addition of the social environment dimension. The model was modified into the following dimensions: Academic staff, Non-academic staff, Organization, Acquired competencies, and Social environment. The questionnaire used for the survey was completed by 826 students from public HEIs in Croatia and Slovenia. For data analysis, the methods of descriptive statistics, exploratory factor analysis, reliability analysis and analysis of variance were used. The results show that students that participate in the following CoPs while studying at HEIs: internship abroad, student projects, exchange semester abroad and in student organizations, show lower levels of perceived service quality of a specific HEI than those who do not participate in the above-mentioned CoPs.

Key words: *perceived service quality, communities of practice, higher educational institutions.*

1. Introduction

The role of higher education institutions (HEIs) is to transfer knowledge, stimulate intellectual and social development, and support students in their pursuit of personal intellectual and social growth. HEIs should not only provide a quality education, but also provide a valuable and affordable education (Mazzarol et al., 2003). Defining, measuring, and assuring quality has been identified as an important concern in HEIs (Harvey and Williams, 2010) because by satisfying stakeholders (such as students, staff, and societal stakeholders), HEIs also increase stakeholder loyalty (Marginson and Rhoades, 2002; Morley, 2003).

Quality is often viewed as a source of competitive advantage, and quality management systems are constantly seeking the most effective ways to satisfy customers and meet their needs. Quality in higher education (HE) is operationalized through multidimensional, multilevel, and dynamic approaches (Vlăsceanu et al., 2007). Harvey (2007) distinguishes quality in the context of HE as excellence, zero errors, fitness for purpose, transformational threshold, value for money, and improvement. It should be noted that quality at HE is categorized as educational quality and administrative quality (Lola, 2013). Educational quality is related to teaching processes and perceptions of stakeholders (Mok, 2002; Rosa et al., 2003). Administrative quality, on the other hand, is related to infrastructure and administrative processes.

Nowadays, as higher education is accessible to everyone, the number of students studying in universities is increasing and the number of HEIs is increasing, resulting in strong competition among HEIs and their concern for student satisfaction. Research has shown that high levels of student satisfaction are associated with higher student retention (Seidman, 2005), more positive word of mouth (Wetzel et al., 1999), and subsequently higher profitability (Zemke, 2000). Understanding the student experience is therefore central to developing a sustainable competitive advantage in HE sector and it has become necessary for HEIs to regularly monitor and measure their performance.

By linking learning, membership, and participation, Communities of practice (CoPs) with visible structural components, shared sense of purpose, and shared routines, stories, heroes, symbols, and infrastructures (Thompson, 2005) represent a form of organizational learning in which social structure and meaning are continuously negotiated through participation. By becoming legitimate peripheral participants (Lave and Wenger, 1991) in CoPs and thus having access to implicit, extensible informal practice, students gain insights into the workings of skilled practitioners and can better understand processes. As a result, they have quicker access to information, resources, and advice, are more aware of problem-solving opportunities, and become more sensitive to community dynamics. Brown & Duguid (1991) assert that the periphery of practice is a critical place not only for learning but also for innovation. As members learn to reflect collectively on their practice, their perceptions of quality change. For this reason, engagement in CoPs can be expected to affect perceptions of quality.

Involving students as one of the most important stakeholders of HEIs (Abdullah, 2006) in the assessment of service quality is important. Various service quality standards include different aspects of student learning. The inclusion of learning and interactive participation through CoPs helps students to better perceive the service quality of HEI. It provides the opportunity to acquire the ability to behave in a community (Hindle, 2010), and it provides students with the opportunity to build a body of knowledge and expand their skills. However, it is important to emphasize that in this process of ensuring a certain level of service quality, HEIs differ in their understanding of service quality standards. The purpose of this paper, therefore, is to examine the relationship between student engagement in communities of practice (CoPs) and their perceptions of service quality at HEIs.

The paper draws on the theories of social and situated learning (Lave and Wenger, 1991) as they relate to student engagement in CoPs because CoPs can be a valuable addition to the HE experience for students. In addition, these theories will be extended to service quality theory (Hill, 1997) in the context of HEIs and will contribute to the understanding of CoPs in the context of HEIs. Second, student engagement in CoPs will be examined with the goal of improving the perceived service quality of HEIs. Offering situated learning during the course of study promotes student engagement in their community and in their work environment. As a result, HEIs are perceived as providing more diverse and higher quality services to students. This paper is structured as follows: first, we provide a theoretical background of CoPs and service quality with focus on HEIs. This is followed by methodology and the presentation of results, which are structured around our main findings. Lastly, we conclude with managerial implications for HEIs and suggestions for future research.

2. Theoretical background

2.1. Communities of practice

Whenever high levels of competences are demanded, Communities of practice (CoPs) are employed in some form. They are often understood as a source of social capital, learning and identity (Lefabvre et al., 2015). Communities of practice definition is attributed to Lave and Wenger (1991) who used it as the central construct of situated learning. Since its introduction, the concept has been adapted and updated. CoPs emphasize professional identity growth which takes place on the basis of interactive participation in a system of situated practices (Hindle, 2010). Communities of practice vary in form and size, but all are self-forming and self-governing, resistant to supervision, interference and cooptation with the organization, because of their inherently organic and informal nature (Wenger and Snyder, 2000). Learning in CoPs, which is a result of social interactions is not simply the acquisition of discrete, static, and abstract knowledge, but occurs through social co-participation, it is contextual and embedded within a social and physical environment.

Communities of practice, as forms of collective learning, do not focus on delivering a finished product. They focus on the process of learning and building the body of knowledge, both at individual and community level (Warr, 2017), which is embedded into a particular social and economic context. Learning and competence acquisition in CoPs materialize when members collaboratively engage in a desired knowledgeable practice within a participational framework. In higher education (HE), various forms of CoPs are continually formed and reformed. Among others, the following CoPs emerge: interest clubs and societies, volunteer work, student competitions, summer schools, lifelong learning programs, internships, mentoring, student consultancy projects, projects with local entrepreneurs, pre-incubators and other business support programs, students' exchange programs, cooperation in scientific and professional papers, conference presentations, professional practical education in the home country and abroad, working on projects and participation in student associations. These undertakings can be considered CoPs because they meet the three criteria (Gómez & Suárez, 2021) that are crucial in distinguishing CoPs from other groups and communities. Members of a CoP distinguish themselves from other people by a shared domain of interest, a commitment to that domain, and a shared understanding, interpretation and competence. Secondly, in these groups, students engage in joint activities and discussions, help each other, and share information, build relationships and learn from each other. Finally, they develop a shared practice: experiences, community-appropriate stories, tools and ways of addressing recurring problems. Thus,

students become active practitioners, so what is learned is deeply connected to the contexts in which it has meaning, and students do not receive explicit, formal, abstract knowledge, but acquire the ability to behave in a community. Through participation, students can collect valuable expertise, as well as the manner and technique appropriate for a particular CoP.

Communities of practice and HEIs operate in different ways. Practices in HEIs are canonical, whereas in CoPs they are noncanonical. CoPs have a practical, rather than formal connection to the world. The obvious difference is that the focus in CoPs is on community and in HEIs on individuals. Furthermore, CoPs emphasize novelty, facts and freedom, while HEIs focus on tried-out things, ideas and control. Also, authority and norms are accentuated in CoPs, while HEIs insist on power and rules.

Behaviors in students' CoPs constantly change in order to bridge the gap between the static, canonical practices of HEIs, which are particularly poor in innovating and adapting, and the challenges of the changing environment. This process is very innovative in its development (Brown & Duguid, 1991). Recently, the disruption of HE caused by COVID-19 pandemic has led to a rise in interest in implementing virtual CoPs as platforms for professional networking (Warr, 2017), delivering training, sharing resources, information and experience among educators and students (Delgado et al., 2021).

CoPs inside HEIs, especially those that span the boundaries of the institution, have numerous benefits. It has been reported that CoPs at HEIs are important drivers of innovation and change (Fullan, 2007) because they encourage students to be active agents in continuous experimentation in CoPs, which can accelerate incremental change and ignite innovation. At the same time, it has been shown that participation of educators and students in CoPs can result in better classroom practices (de Carvalho-Filho, et al., 2020), as well as in improved educational outcomes (VanThemaat, 2019). As the source of innovation can lie outside the institution, students' CoPs can be a valuable source of external and innovative ideas for the HEI. While bringing together different HEIs or different departments of the same HEI, students' CoPs can harness innovative energy.

Guiding forces of CoPs include student engagement in extracurricular activities and preparing students for meaningful future careers. Students are involved with the goal of providing them with a variety of ideas and activities to help them acquire the learning skills and competencies in demand among future employees. As students are participating in some form of CoPs, they can more deeply understand the service quality of a specific HEI, so they can more objectively assess it. Therefore, it is proposed that:

H1: Students participating in CoPs have higher levels of perceived service quality of a specific HEI.

2.2. Service quality

Quality of service is critical to the success of any organization providing services in a competitive environment (Parasuraman et al., 1988; Ladhari, 2009). Although researchers do not agree on the definition of service quality, they tend to think of it as the consumer's judgement or impression of the overall excellence or superiority of the provider (Cronin and Taylor, 1992; Parasuraman et al., 1985). It should be noted that these perceptions are subjective and deeply rooted in personal experience.

At HE, service quality includes quality of administration, quality of physical environment, quality of core education, quality of support facilities, and transformative quality (Teeroovengadum et al., 2016). It also includes the perception of service delivery. Service delivery is measured by parameters such as academic and non-academic resources (Abdullah, 2006). Academic resources include teaching staff, pedagogy, curriculum, and library resources (Doherty, 2008), while non-academic resources include technological infrastructure, facilities, and non-teaching staff (Grant et al., 2004). Assessment of service quality focuses on collaboration, responsiveness, courses offered, campus facilities, teaching practices, internal assessments, external assessments, computer facilities, post-graduation factors, and library resources (Lagrosen et al., 2004). Yeo (2009) observed service quality in HE based on holistic and experiential evaluation of educational service. The author also pointed out that in HE it is important to distinguish between quality monitoring and quality improvement approaches. Bowden and Wood (2011) stated that providing caring, individualized attention and developing students' relationship and emotional attachment to the institution and its academic and administrative members is important in developing students' satisfaction and their continued referral.

Chavan et al. (2014) included social benefits and co-creation as two additional factors in students' perceptions of service quality HE because these factors strongly influence students' perceptions of quality and their satisfaction with HEIs. Social benefits include recognition of accomplishments, friendships, and the experience of shared goals. Co-creation refers to joint activities to create value.

Higher education institutions should be customer-centered, but students, faculty, parents, and HEI leadership have different perceptions of HE services quality. Students, for example, who have limited prior experience with service, see quality in the context of the educational process and future employability, as well as their expectations. Although these tend to be vague (Chavan et al., 2014), they have a major impact on their experience with HE. Therefore, Bordia et al. (2005) recommend that HEIs gain a better understanding of students' expectations. They also call for responsible marketing by HEIs to students so that expectations do not lead to disappointment with HE.

As students receive more attention at HE, universities are striving to meet student expectations by operationalizing quality and monitoring service quality in ways that provide insights for implementing interventions to increase student satisfaction (Duarte et al., 2012; Grace et al., 2012; Chahal and Devi, 2013). In addition, universities should provide opportunities for student participation in the co-production of HEI services through participation in the design, development, and delivery of those services (Lusch et al., 2006). This can be accomplished through various CoPs, such as experiential exercises, community engagement, internships, and work-study activities. It could also be enhanced through social experiences offered by the institution to foster a sense of involvement, attachment, belonging, and relationship between students and staff (Chavan et al., 2014), such as participation in student organizations, competitions, collaborative participation in projects, or research as forms of CoPs.

As a result of numerous reforms facing higher education, an educational paradigm has recently emerged that places the student as the primary agent of higher education at the center of the educational process. The concept of student-centered learning is based on active learning that emphasizes critical and analytical learning, increased responsibility, autonomy, and student engagement, while the relationship between teachers and students is based on reflection on the learning and teaching process (Europska komisija, 2015: 15). In order for HEIs to meet the

requirements of the new educational paradigm, the quality of services is extremely important nowadays (although it has always been crucial), especially in the context of the exceptional competitiveness of the higher education sector. In order to develop the integrity of the competences of the students of HEIs, as partners in the construction of knowledge, solutions should be found for offering quality knowledge applicable to an increasingly demanding and complex labor market. To provide a quality service, HEIs must differentiate themselves from the competition, and this means offering a diverse educational experience. CoPs that enable competency and thus competitiveness for graduates entering the labor market contribute to this diverse educational experience. Therefore, it is imperative that HEIs encourage students to participate in CoPs. However, students may participate in different forms of CoPs (Gómez & Suárez, 2021), and therefore differences in students' perceptions of the quality of service offered by HEIs may be found. On this basis, we posit the following proposition:

H2: There is a difference in the perception of service quality of a specific HEI with regard to the form of CoPs.

3. Methodology

The SERVQUAL model has been widely used (Parasuraman et al., 1985, Malik et al., 2010; Asaduzzaman et al., 2013; Legčević, 2009; Khattab, 2018) to measure service quality based on the comparison of service perception and expectation. The modified SERVQUAL model (Leko Šimić and Štimac, 2013; Leko Šimić and Čarapić, 2008) is an instrument related to the perceived quality of HE services. The same authors adapted the dimensions of the SERVQUAL model into the following dimensions: Academic staff, Non-academic staff, Organization, and Acquired competencies. The authors of this paper added the dimension of social environment to the adapted SERVQUAL model mentioned above because previous research (Furlong et al., 2003, Tinto, 2005, Pickford, 2016) emphasize the role of social environment in degree completion as well as in promoting student engagement during the degree program.

Participants rated the perceived quality of the modified SERVQUAL dimensions, including social environment, on a 5-point Likert scale with scores ranging from 1 "not at all satisfied" to 5 "completely satisfied."

In addition, the authors, following Gómez & Suárez's (2021) criteria for CoPs, conducted a content analysis of HEIs included in the study and identified the following CoPs activities: volunteering, student competitions, collaboration in the publication of scientific and professional papers, conference presentations, internships, internships abroad, collaboration in projects, international student exchange, participation in lifelong learning programs, and collaboration in student associations. The survey therefore included information on the presence of these CoP activities at the HEIs surveyed and whether or not the respondents, i.e. students, participated in these activities.

The survey was conducted in HEIs in Croatia and Slovenia. Two countries that have similar higher education systems (European Commission/EACEA/Eurydice, 2018) and where new programs were introduced after the signing of the Bologna Declaration in the academic year 2005/2006. In these two countries, research included five higher education institutions in the field of business. A total of 826 students participated. The survey was conducted between January 2017 and April 2019 using paper-and-pencil questionnaires.

Data were analyzed using the program SPSS ver. 26. The methods of descriptive statistics, exploratory factor analysis, reliability analysis and analysis of variance were used.

4. Research analysis and the results

The research sample consists of 826 respondents from two countries: Croatia (78.2%) and Slovenia (21.8%). The majority of the respondents are female (67.4%). The predominant female structure is characteristic of HEIs in the field of business in this region: Croatia 69.5% (Rimac, 2021) and Slovenia 64% (Gril, et al., 2022). The respondents attend the first year of study (0.1%), second year of study (23.2%), third year of study (26.2%), fourth year of study (26.4%), and fifth year of study (24.1%).

The analysis of the research results was continued with an exploratory factor analysis to check whether the scales used were suitable for further analysis. Exploratory factor analysis (EFA) was performed using Principal component analysis in SPSS with oblimin rotation and Kaiser normalization. After cleaning the scales and excluding items that had low commonality, i.e., less than 0.5, as suggested by Field (2009), or that overlapped on multiple factors, three items were excluded from further analysis. Analysis results related to Kaiser-Meyer-Olkin (KMO) sampling adequacy and Bartlett's test for sphericity were reported: KMO=0.939 and $\chi^2=11691.336$ ($p < 0.05$). Thus, according to the thresholds of Hair et al. (2006), this sample is adequate and the analysis can proceed. In the analysis, no factor loading is lower than 0.3, as suggested by Field (2009). In our EFA, a five-factor solution emerged, showing the following factors of perceived service quality in HE: acquired skills, non-academic staff, organization, social life, and academic staff. These factors explain 65.734% of the variance in the research results. The results of the exploratory analysis and reliability analysis are shown in Table 1.

Table 1: Exploratory analysis and reliability analysis

Items	Factor				
	Acquired competencies	Non-academic staff	Organization	Social life	Academic staff
teachers who perform their work well		0.316			-0.331
with administrative staff who perform their work well		0.866			
adequate organization of the study program		0.394	0.348		
good organization of social events at the school				0.412	
acquired knowledge and skills that are aligned with the labor market	0.861				
with my studies because it enables me to develop personally	0.773				
knowledge and skills of teachers that are at a high level	0.388				-0.306
knowledge and skills of officials that are at a high level		0.843			
opportunities to make and develop friendships/contacts at the university				0.923	
acquired knowledge and skills that are useful and socially necessary	0.665				

Items	Factor				
	Acquired competencies	Non-academic staff	Organization	Social life	Academic staff
because the class schedule is adapted to all students			0.866		
because the school's working hours are adapted to all students			0.836		
the availability and friendliness of teachers, which is at a high level					-0.502
availability and friendliness of the administrative staff, which is at a high level		0.802			
teachers who encourage and motivate students for curricular and extracurricular activities					-0.506
the school's reputation, which is good in the local environment	0.376				-0.314
acquired knowledge and skills that enable me to solve various problems and challenges	0.786				
the quality of the study program	0.700				
the quality of social life at the school				0.742	
the knowledge and skills obtained from studying correspond to my expectations.	0.662				
the teacher's reputation, which is at a high level	0.302				-0.554
timely informing students about all changes in the schedule, cancellation of lectures, holding exams, etc.			0.365		-0.461
communication skills of teachers, which are at a high level					-0.750
the communication skills of the administrative staff, which are at a high level		0.794			
Cronbach's alpha	0.892	0.848	0.746	0.691	0.877
% of explained variance	44.214%	7.310%	5.407%	4.594%	4.209%
Eigenvalue	10.611	1.754	1.298	1.103	1.010
Scale mean	24.06	16.61	6.23	10.87	24.85

Source: Authors

From the results, most of the scales have reliability above the recommended value of 0.7 (Nunnally, 1967), i.e., the Cronbach alphas range from 0.892 to 0.746. The Social Environment scale has a Cronbach alpha of 0.691, which according to Nunnally and Berstein (1994) and Peterson (1994) indicates acceptable reliability. This means that the scales are reliable and can be used for further analysis. In the subsequent analysis, the scales were composed as the average index of the items that make up the factor.

To test the hypotheses, an analysis of variance (ANOVA) was performed. The analysis focused on the CoPs activities: Volunteering, Student Competitions, Assisting in the Publication of Scholarly and Professional Papers, Conference Presentations, Internships, Internships Abroad, Project Work, International Student Exchange, Participation in Lifelong Learning Programs, and Involvement in Student Associations in relation to perceived service quality in HEI. Thus,

differences in perceived service quality between students who participate in CoPs and those who do not were to be examined. Levene's test for homogeneity of variances was conducted, and all cases were found to be statistically nonsignificant. Table 2 shows only the CoPs where statistically significant differences were found between students who participate in this form and those who do not, as no statistically significant difference was found for students who participate in the following CoPs: Volunteering, Student Competitions, Assisting in the Publication of Scholarly and Professional Works, Conference Presentations, Internships, and Participation in Lifelong Learning Programs. In addition, only statistically significant values are reported in Table 2.

Table 2: Results of analysis of variance for perceived service quality and CoPs

Factors	Internship abroad	Working on projects	International student exchange	Working in student associations
Acquired competencies			F(1,824)=6.039**	F(1,824)=3.596*
Non-academic staff		F(1,824)=6.969**	F(1,824)=5.434**	
Organization	F(1,824)=3.645*	F(1,824)=10.556***		
Social life			F(1,824)=7.278**	
Academic staff	F(1,824)=2.740*	F(1,824)=2.740*	F(1,824)=6.604**	

Note: *** p < 0.001, ** p < 0.05, * p < 0.1

Source: Authors

Based on the research results, we can conclude that respondents who participated in an international internship consider organization in the HEI less important (M=2,444 participating; M=3,124 not participating). Similarly, students who have participated in projects find that non-academic staff at HEI have a lower value (M=3.122 participating; M=3.35 not participating), as does organization at HEI (M=2.789 participating; M=3.15 not participating) and academic staff at HEI (M=3.414 participating; M=3.568 not participating).

Students who have participated in an international student exchange find not only the non-academic staff at HEI a lower value (M=3.08 participating; M=3.34 non-participating), but also the social environment at HEI a lower value (M=3.364 participating; M=3.641 not participating) and academic staff in the HEI a lower value (M=3.312 participating; M=3.566 not participating), but also acquired skills in the HEI are perceived as lower (M=3.203 participating; M=3.454 not participating). Similarly, students who have worked in student organizations find that acquired competencies in the HEI have a lower value (M=3.306 participating; M=3.455 non-participating).

From the research results, it can be concluded that the hypothesis: Students who participate in CoPs have a higher level of perceived service quality of a particular HEI (H1); cannot be accepted. For the various forms of CoPs where there is a statistically significant difference between students who participate in these CoPs and students who do not, such as internships abroad, project work, participation in international student exchange, and work in student associations, students' perceptions of service quality are lower when they have participated in CoPs.

As indicated by the research findings, for some forms of CoPs, such as participating in internships abroad, working on projects, participating in international student exchanges, and working in student associations, students perceive the service quality of their college differently

than students who have not participated in these CoPs, and therefore express a lower level of perceived service quality of a particular HEI. No statistically significant difference was found for other forms of CoPs. Therefore, we accept the hypothesis: There is a difference in the perception of service quality of a particular HEI with respect to the form of CoPs.

5. Discussion and conclusions

The study examined higher education services in Croatia and Slovenia and provided insights into the dimensions of the quality of higher education services provided by business-related programs in both countries. The relationship between perceived quality of higher education (academic staff, non-academic staff, organization, acquired competencies, and social environment) and participation in CoPs was examined. The research findings contributed to the understanding of the importance of those dimensions of the quality of HEIs that encourage students to participate in CoPs so that they achieve better outcomes and are better prepared for the labor market.

Research on perceived service quality of HEIs has made the following contributions. First, it shows that perceptions of service quality depend on the form of CoPs. Students who participate in CoPs such as internships abroad, project work, international student exchanges, and student associations, perceive the service quality of their HEIs differently than students who do not participate in these CoPs. For other forms of CoPs, the research shows that there is no difference in perceived service quality. The reason for this could be that the different forms of CoPs offer participants different experiences. Internships abroad, project work, international student exchanges, and student associations from CoPs, where no significant difference was found, in that students in the above CoPs interact with a significant number of other students from different HEIs. As they learn about and reflect on different practices together, they are better able to understand and compare service quality and thus evaluate it differently. Previous research (Abdullah, 2006) has also shown that incorporating learning and interactive participation allows students to have a better perception of service quality.

The results presented are consistent with some studies indicating that participation in CoPs has a positive impact on academic success (Lawhorn, 2009; Tan & Pope, 2007; Darling, 2005; Larson et al., 2006). Other research confirms that participation in CoPs lowers dropout rates (Davalos et al., 1999), likely because CoPs, which provide a meeting place for students with similar interests, can go a long way toward creating a sense of connectedness between students and colleges.

Second, research findings suggest that students who participate in CoPs do not have higher perceived service quality; on the contrary, students with experience in CoPs have lower perceived service quality at their colleges. This is in contrast to previous studies that have shown a relationship between positive administrative staff attitudes and a supportive learning environment (Arena et al., 2010; Kuh et al., 2008) or importance to student motivation to participate in various forms of CoPs. This could be due to the fact that students who participate in the above-mentioned CoPs have deeper experiences with different higher education institutions, especially if they have participated in an international exchange or completed internships in different countries and organizations. They can compare different organizations with their perception of service quality in their home country HEI. Thus, if HEIs motivate students to develop their competencies and participate in CoPs, they must also be willing to

change and improve the service quality in their organization. Therefore, motivating students to participate in CoPs could have a positive long-term impact on HEIs' service quality.

Participation in CoPs is important to strengthen the competitiveness of HEIs in national and international education markets. This research will encourage higher education management to understand the importance of continuous improvement and quality enhancement that will encourage students to participate in CoPs. This will also have a positive impact on HEI management to continuously improve the quality of their services, as students who participate in CoPs will be more rigorous in evaluating the quality of services they receive from HEIs.

The introduction of CoPs into higher education practice changes perceptions of service quality. It provides an opportunity to engage students in various aspects of interactive learning and in social learning contexts. Motivating students to participate in CoPs helps them shape their curriculum and enables higher education institutions to provide more meaningful and higher quality services. This can be achieved by investing in the implementation of international accreditation standards, improving elements of service quality that are perceived at a lower level, or benchmarking with other HEIs with the goal of improving the student experience and service quality.

Although the results presented in this paper are based on initial preliminary quantitative studies, they must be interpreted in light of several limitations. Therefore, the conclusions drawn would benefit from further research and a qualitative approach to allow for a more generalizable conclusion. Since the study focused on the student population in general, a more detailed approach comparing undergraduate students to graduate students could provide additional information. In addition, the study was conducted with students as one of the primary stakeholders in HEIs; conducting the same study with other stakeholders, such as academic staff, would broaden the scope of the use of CoPs in HEIs. Because the study included only a limited number of students who participated in CoPs, it would be beneficial to increase the sample size to obtain more generalizable results or to conduct a qualitative study to determine how to motivate students to participate more in various CoPs. Conducting studies with different stakeholders at HE would also allow for a comparison between their perceptions of service quality and students' perceptions, providing important insights for service management. In addition, future research could examine how expectations and ratings of service quality change over the duration of the study as part of a longitudinal study.

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A scientific paper

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GENDER MAINSTREAMING AT THE UNIVERSITY AS A DEVELOPMENT POLICY: DOCUMENT ANALYSIS

ABSTRACT

The aim of this paper is to analyse documents on gender mainstreaming at the university level that, among other goals, strive to contribute to the entire social and economic development. The main research questions are what policies and measures at the universities are planned or implemented regarding gender mainstreaming, what the situation with gender structure at universities was like before passing the gender equality plans and how these policies relate to wider social and economic development objectives. The paper discusses general reasons for gender mainstreaming, deals with the conceptual framework of gender mainstreaming and puts the strategies of mainstreaming in the context of specific policies aimed at achieving gender equality. The methodology employed here is document analysis as a qualitative research method in social sciences. Additional objective of this paper is to discuss the specific benefits and limitations of this research method. The documents comprising the empirical material of this study include individual gender equality plans of Croatian universities, in addition to presenting the European legislative framework, which serves to provide context and foundation. The results of this analysis reveal that the main objectives and measures refer to the integration of the sex/gender dimension into research and teaching content, the issue of gender-based violence including sexual harassment, gender-specific data collection and analysis, equal access to and utilisation of services, involvement in decision making and leadership and achieving work-life balance. The paper also brings insight into the work of the newly established Gender Equality Board at the Josip Juraj Strossmayer University of Osijek, which is a regional partner at the project UNIGEM (Universities and Gender Mainstreaming).

Key words: *development, document analysis, gender mainstreaming, policy, university.*

1. Introduction

Gender mainstreaming at the university refers to the integration of gender perspectives and the promotion of gender equality in all aspects of university life. This includes policies, programs, and activities related to teaching and learning, research, governance, and administration. One of the main goals of gender mainstreaming at the university is to address the gender-based inequalities that exist in higher education. This includes addressing issues such as the underrepresentation of women and other marginalized genders in leadership and decision-making positions, gender-based violence and harassment, the promotion of gender diversity and inclusivity in recruitment and hiring practices, and gender biases in curricula and teaching methods.

Effective gender mainstreaming at the university requires a sustained and coordinated effort from all levels of the institution, including leadership, faculty, staff, and students. It also requires ongoing monitoring and evaluation to assess the effectiveness of gender mainstreaming efforts and to identify areas for improvement.

Overall, gender mainstreaming at the university is an important development policy as it tries to maximise the potential of human resources and recruitment of excellence. By addressing gender-based inequalities and promoting inclusivity and diversity, gender mainstreaming at the university can help to create a more equitable and just society.

The aim of this paper is to analyse gender equality plans (GEPs) of Croatian public universities by applying document analysis and by coding all documents primarily for their main goals (objectives, purposes) and measures (activities and deliverables) foreseen in achieving these goals. The first chapter gives a short outline of the conceptual framework and investigates reasons for striving to achieve gender equality at the university. Legal framework is given too for context and foundation upon which GEPs have been compiled. Then the qualitative method of document analysis in social sciences is described, together with our specific sampling and coding procedure. The codes applied in analysing the material include strategic objectives, activities, measures, insights into the existing situation, glass ceiling etc. There is attention given to wider social, economic, and cultural developmental aspects of striving to achieve gender equality at the university.

There are several research questions this research is led by:

1. What objectives, goals and purposes are planned within respective GEPs of Croatian public universities?
2. What measures and activities at the universities are generally planned to achieve these objectives?
3. What was the gender structure at institutions prior to passing GEPs?
4. How the objectives and measures written in GEPs relate to wider social and economic development objectives?

The findings of this analysis indicate that Croatian universities' GEPs are primarily focused on education, research, hiring practices, gender based violence, work life balance and management when it comes to gender mainstreaming. The primary measures and obstacles related to gender integration in these areas include incorporating gender perspectives into research and teaching materials, addressing gender-based violence and sexual harassment, collecting and analysing gender-specific data, ensuring equal access to services, promoting involvement in leadership and decision-making, and achieving a work-life balance. This

information can be used to identify areas where further action is needed to promote gender equality and to inform future policy and strategy development.

The paper also brings insight into the work of the newly established Gender Equality Board at the Josip Juraj Strossmayer University of Osijek, which is a regional partner at the project UNIGEM (Universities and Gender Mainstreaming).

2. Gender mainstreaming at the university: definitions, reasons and legislative framework

In this chapter we define gender mainstreaming as the key concept employed in our research, as well as explain the rationale of doing research on implementation of this strategy in university context.

Third World Conference on Women, held in 1980, brought the concept of gender mainstreaming for the first time ever, and as a global strategy for promotion of gender equality it was then established in 1995 at the Fourth World Conference on Women in Beijing. The European Union accepted it as official policy approach in the Amsterdam Treaty (1997) and it is considered to be an important breakthrough in the concept of gender issues at EU level, because for the first time gender equality was specifically included in the Treaties as one of the tasks, and gender mainstreaming as one of the activities (Arribas & Carasco, 2003).

UN Women (2022) organization recognizes gender mainstreaming as the core strategy for accelerating progress on gender equality. Frequently used definition of gender mainstreaming describes it as "the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality" (Report of the Economic and Social Council for 1997, UN).

Specific organisational and socio-economic context in which gender mainstreaming strategy is implemented should be considered. This context can differ considerably, so there can be no blueprint for implementing gender mainstreaming, and methodologies must be tailored according to the prevalent set of ideas (norms, beliefs and cetera), the practices (regulations, laws) that stem from these ideas, and finally the power systems and relations, or, in other words, who has the power to impose both the dominant set of ideas and the practices (UN Women, 2022). This study will help shed some light on how gender mainstreaming concept is implemented on different levels in the specific context of Croatian universities.

Research indicates that there are two forms of discrimination within academia, firstly, isolated incidents of discrimination, and secondly, widespread subtle institutional or cultural forms of discrimination, in particular a subtle process of gender devaluation through which women's work is devalued, so that high status positions also become devalued as women take on these roles (Monroe et al, 2008). The second form of discrimination is more difficult to recognize, and gender equality public policies at universities are maybe less focused on addressing and acknowledging it. Therefore, we believe that it is of particular importance to analyse measures aimed at such forms of discrimination in the documents on gender equality at universities.

Some useful strategies in dealing with this problem are proposed: first, redefining the concept of professional success so it can move further from the traditional model where a professional is focused on career only and has few family duties; second, specific policies such as longer tracks to tenure and ensuring that these policies are actually applied; third, establishing partner-hiring policies because women who are professionals often have partners who are also professionals; and, finally, redefining mentoring program in a way that it is extended beyond tenure and that all faculty are automatically enrolled, which will ensure on-going support without being stigmatized for needing help (Monroe et al, 2008). We find these suggestions very useful, so we are interested to find out if some of these strategies have been applied in the policies of Croatian universities, and to what extent.

Since gender mainstreaming strategy calls for a comprehensive restructuring of institutions from gender perspectives, it "requires the consciousness, commitment and the active participation of all staff members from all sections and levels of the organisation" (Wickramasinghe, 2010). In academic setting that would mean including not just university employees such as teachers and scientists, but also students, administration, and all levels of management. It is also important to notice that gender issues are not only social, but also personal, which means that implementing gender mainstreaming as a strategy to create gender sensitive universities depends also on an individual's understanding of it and a personal commitment to change (Wickramasinghe, 2010). For that matter, it is important to work on raising awareness on these topics, and not just through theoretical work and lecturing, but also through organising workshop sessions in whole academic community, both for and by women and men, because gender mainstreaming takes into account the concerns and needs of both genders (Wickramasinghe, 2010). Our analysis will try to find out if gender equality plans at Croatian universities include such comprehensive approach to this matter, or they aim at just some of those levels.

Equality between men and women is a fundamental principle of the European Union that applies to all aspects of life in society, including the world of work. As part of its Gender Equality Strategy 2020-2025, the European Commission has expressed its commitment to promoting gender equality in research and innovation. One of the measures to strengthen gender equality introduced by the European Commission is the existence of institutional gender equality plans as a prerequisite for securing funding from the Horizon Europe research and innovation framework program.

Gender Equality Plans (GEPs) of Croatian public universities are developed in line with institutional, national, and European legislation and strategies, as well as strategies and criteria for monitoring the action against all forms of discrimination, including:

- EU-CONEXUS Research and Innovation Gender Equality Plan,
- EU Gender Equality Strategy 2020-2025,
- Directive 2006/54 EC of the European Parliament and the Council of Europe on gender equality in the labour market,
- Directive (EU) 2019/1158 of the European Parliament and the Council of Europe on work-life balance for parents and carers,
- Council of Europe Gender Equality Strategy 2018-2023,
- Council of Europe Convention on preventing and combating violence against women and domestic violence (Istanbul Convention),
- European Charter for Researchers and Code of Conduct for the Recruitment of Researchers,
- Anti-Discrimination Act,

- Gender Equality Act,
- Strategic Plan of the Ministry of Science and Education of Croatia for the period 2020-2022,
- National Plan for Combating Discrimination 2017-2022,
- National Development Strategy of the Republic of Croatia until 2030,
- Labour law,
- Constitution of the Republic of Croatia,
- Strategy of Science, Education and Technology of the Republic of Croatia,
- National Plan for Combating Discrimination for the period from 2017 to 2022,
- National Development Strategy of the Republic of Croatia until 2030,
- Report of the Committee on Women's Rights and Gender Equality on women in scientific and university careers and the glass ceiling they face (2015)
- Council of Europe Strategy for Equality between Women and Men 2018-2023
- ILO Convention on Violence and Harassment in the World of Work (2019), Recommendation No. 206 on the elimination of violence and harassment in the world of work
- Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), 1979
- Recommendations of the Committee on the Elimination of Discrimination against Women for Croatia, 2015 (CEDAW/C/HRV/CO/4-5)
- Sustainable Development Goals by 2030 (Goal 5: Gender Equality; Goal 8: Decent Work and Economic Growth; Goal 10: Reduced Inequalities)
- European Institute for Gender Equality (Gender Equality Index, GEAR tool)
- European Charter for Researchers and Code of Conduct for the Recruitment of Researchers
- Human Resources Strategy for Researchers (HRS4R)
- Horizon Europe (2021-2027)
- Respective university strategies and codes of ethics.

An important regional agent in achieving gender equality at the universities is the project Universities and gender mainstreaming (UNIGEM), with headquarters in Sarajevo, funded by TPO foundation. It brings together nineteen regional universities from Croatia, Bosnia and Herzegovina, Serbia, and Montenegro as well as scientists who research gender issues in higher education. The bodies in charge of gender equality at individual universities coordinate project cooperation between the university and UNIGEM. The University of Osijek joined the project by signing the memorandum in the summer of 2022 and its current Gender Equality Board conducts a series of activities and implements the GEP. Both Project UNIGEM and TPO Foundation have played a critical role in promoting gender equality at the university level in the region. By raising awareness about gender issues, developing gender-sensitive policies and practices, and providing support for gender-related research, these organizations have helped to create an inclusive and equitable environment for all students and teachers. Their work serves as an important model for other organizations and institutions seeking to promote gender equality and social justice.

3. Methodology

The purpose of this study is to explore the scope of programs and strategies relevant to gender mainstreaming in GEPs of public universities in Croatia. Additionally, the purpose is to detect

whether and how universities implement gender policies within institutional programs and strategies of universities. Such document analysis was done through a specific focus on gender analysis which refers to: “an examination of the differences in gender roles, responsibilities, needs, opportunities and rights of women, men, girls, boys and persons of other genders within various contexts” (UN Women, 2022). The goal of this study is asynchronous to that of gender analysis, to which *The Handbook on Gender Mainstreaming for Gender Equality* (2022) refers to as attempts to better understand the gender equality situation within a specific context, such as higher education, to ensure that policy and practice promote and empower Gender Equality Plan (GEP) both systematically and effectively.

In order to better understand the potentials and limitations of GEPs within universities, we implemented document analysis which refers to the systematic procedure for reviewing or evaluating both online and printed documents. It has been used as a process of quantification of published articles within mixed methods, as well as a method of analysis within qualitative research (Bowen, 2009). For elaboration on the use of document analysis, it is important to highlight two main approaches of the analysis, as well as a characteristic and constraints of analysis. Within such analysis, documents can be treated as a source or as social products and cultural artifacts which are subjected to analysis (Karppinen and Moe, 2012). In the first approach, documents are treated as ideas that represent a resource of political actors and therefore can be compared or mapped for policy developments (Karppinen and Moe, 2012). However, the second approach is more interested in treating documents as products of social and political words with an analysis focus set on the interpretation of themes or discourses within documents (Karppinen and Moe, 2012).

As a familiar method of qualitative research, a comprehensive document analysis has been conducted to examine gender mainstreaming principles. With a documentary approach to document analysis, Clavero & Galligan (2019.) examined the potential of GEPs within seven universities to transform gender-power relations in academia. With evaluation based on Fricker’s concept of epistemic justice and Bourdieu’s examination of power in academic settings, they concluded that more attention should be drawn to the role of academic power in creating gender injustice at all institutional levels, as well as to the role of organizational culture in perpetuating gender inequalities (Clavero & Galligan, 2019). While it is common to use document analysis as a single method, some authors combine document analysis with other qualitative and quantitative methods to explore gender mainstreaming implementations in action within policy amendments (Ravindran et al., 2022).

Despite the advantages of document analysis, the approach to this analysis requires methodological awareness (Karppinen & Moe, 2012; Shaw, Elston & Abbott, 2004). Since documents rely on the subjective interpretations of the analyst, a possible bias within interpretations should be acknowledged (Karppinen & Moe, 2012; Shaw, Elston & Abbott, 2004). Among other things, QDA is often seen as time-consuming. Additionally, researchers can be met with limited sample size or limited generalizability within the use of QDA (Karppinen & Moe, 2012; Shaw, Elston & Abbott, 2004). Nevertheless, a wide use of such analysis within qualitative research highlights that it can generate insightful findings if the well-explicated approach is implemented.

A rationale for the use of documentary analysis lies within the idea to choose the most appropriate analysis which can contribute to the evaluation of policy implementations regarding gender equality. Since documents serve as “A local response to government guidance”, analysis of such content is appropriate for the interpretation of specific policy

context (Shaw, Elston & Abbott, 2004; Karppinen and Moe, 2012). Such analysis is suitable for mitigating the deficiency of accessible data, especially if documents are available and other forms of data are inaccessible (Mason, 2002). Furthermore, this analysis is budget-friendly, as well as a non-intrusive method that provides fewer ethical issues than data collection which includes participants (Shaw, Elston & Abbott, 2004).

With these remarks, benefits and limitations in mind, a comprehensive qualitative analysis of GEPs published by Croatian public universities has been conducted and this was the primary sampling strategy to examine gender mainstreaming principles. To explore the potential and limitations of GEP within universities, a document analysis was performed based on a manual web-scraping method of the online websites of the universities for the collection of documents (N=8). The documents comprising the empirical material of this study include individual gender equality plans of Croatian universities, in addition to presenting the European legislative framework, which serves to provide context and foundation.

The attempts to analyse documents on gender mainstreaming at the university level were guided by the main research questions: what policies and measures at the universities are planned or implemented regarding gender mainstreaming, what was gender structure at universities before passing the GEPs, and how do these policies relate to wider social and economic development objectives?

4. Analysis and discussion of results

There are nine (9) Croatian public universities: in Dubrovnik (UNIDU), Osijek (UNIOS), Pula (UNIPU), Rijeka (UNIRI), Slavonski Brod (UNISB), Split (UNIST), Zadar (UNIZD), Zagreb (UNIZG) and University North (UNIN), and eight (8) of them have their Gender Equality Plan (GEP)¹ available in PDF format on the official web site of the university. Only University of Zagreb does not have such a document uploaded, since it does not exist. The faculties of the University of Zagreb however have their individual GEPs, which will not be a part of analysed empirical material in this paper. All documents have been passed at senates of universities in the period between May 2021 and January 2023, and they refer to four or six-year periods (stated in Table 1). Only University of Dubrovnik does not explicitly state the date of passing the document in the GEP. The years of publishing the documents reveal that the European Commission's strategy to make the passing of institutional gender equality plans a prerequisite for securing funding from the Horizon Europe research and innovation framework program was indeed effective in motivating all Croatian public universities to undertake at least these basic steps in strengthening gender equality at the university.

Table 1: Years of passing the GEP and period of validity

University	Year of publication	The period the GEP refers to
UNIN	2022	2022-2025
UNIOS	2022	2022-2026
UNIPU	2023	2023-2027
UNRI	2021	2021-2025
UNISB	2022	2022-2026

¹ All listed in references.

University	Year of publication	The period the GEP refers to
UNIST	2021	2021-2027
UNIZD	2022	2022-2026
UNIDU	Not stated	2022-2026

Source: Authors

Titles of all GEPs contain the phrase ‘gender equality’, apart from the document compiled by the University of Zadar, which refers to ‘sex’ (Cro. *spol*) rather than gender (Cro. *rod*)– their reason can be that the term gender is not widely used in the Croatian legislative framework. Especially prior to the Istanbul convention, there was no term ‘gender’ used in Croatian legislation, so it seems University of Zadar complied with this situation. This terminological distinction and its relevance in the Croatian linguistic and socio-political context are not visible in English translations where the term gender is used to translate Croatian acts and policies actually containing the term *spol* (sex). To compare and contextualize, compare with the studies illustrating a heated debate on this issue in the Croatian context in civil society and academia (Petričušić, Čehulić & Čepo, 2017; Bijelić, 2008; Hodžić & Bijelić, 2015).

Eight available GEPs start by giving a wider European legislative framework for compiling the document, and these documents were listed in chapter 2. Also, seven GEPs (all but UNIRI) start by empirically portraying the situation regarding gender representation at the university before passing the GEP. The data refer to gender structure of management and employees in research-teaching and administrative jobs, as well as the number of students. Sometimes, there is the difference between fields of science (STEM, social sciences, humanities, biomedicine) shown in the data describing the gender structure or representation at the universities before passing their respective GEPs.

UNIPU employs more women researchers in all positions but the top one of permanent full professors, where there are more men. Also, there are more men in the university management structure, and women prevail in the total number of human resources, and predominantly so in administrative jobs. Precise percentages and figures were not provided in the GEP, but only visual representations were illustrated.

UNIDU shows the gender composition of scientists in STEM area where there are 33% women, and 67% men, whereas the gender composition of scientists in social sciences and humanities at the University of Dubrovnik is 73% in favour of women. Gender composition of administrative staff reveals there are 47% men and 53% women in administration, and regarding student population in the academic year 2021/22 there are 29% women in STEM study programmes and 63% women in social sciences and humanities.

At the UNIN there are 129 women out of 275 employees at the university in total, and 6 out of 7 university management board members are men. Also, there are 85% men among deans of faculties. Contrarily, there are 87% women among non-teaching administrative staff. There are 70% men employed in research-teaching positions.

At the UNIOS there are more women than men in all research-teaching positions but the top one of permanent full professors. Members of the university management and management of all faculties are predominantly men. There are far more women secretaries than men at the

university, and far more female students in all types of study programmes, except professional studies.

UNISB has been recently established and there are 52% women among employees, but men prevail predominantly in all research-teaching jobs, especially among full professors where there are no women. Management at the university and all faculties is predominantly male too, and the only sector with prevailing number of women, 84% of them, is administration. There are 48% women among student population. The data are for 2021/22.

UNIST provides data for 2019/20 - there are 48.77% women among the teaching staff, and 86% men in university management structures. The number of women in research-teaching positions is high in science, social science, biomedicine and humanities, and lower in engineering, with the number of women significantly lower only in the rank of permanent full professors.

UNIZD portrays the following situation, 63% of all employees are women, 58% among the teaching staff. There are more women working at all research-teaching jobs except for the highest of permanent full professor where there are slightly more men. Also, there are 56% women in the university management structure and many more women are heads of faculties and departments. There is no glass ceiling at UNIZD it seems. Most students are female. There are no elements of vertical segregation based on sex.

To discuss this situation, the process of feminization at research and higher education institutions is visible in all areas, although highest ranks, management structures and STEM field are still male (Silova & Magno, 2004; Ayalon, 2003; Barone, 2011). Administration staff is predominantly female and engineering disciplines predominantly male. Although not everywhere, there is still glass ceiling. Of course, the approach of gender mainstreaming is part of liberal strategies, it is deeply rooted in taking the gender binary as pre-given and revolves around slow reforms. We can see that in the wider social context severe gender inequalities persist despite long duration of achieved political and legal rights. There is a social and cultural dimension of power that cannot be completely subsumed under legal discourse. This is why we need to work on socialization aspects and wider cultural changes to achieve equality of all people, regarding race, gender, class, ethnicity, religion etc. This intersectional perspective is important when it comes to research and offering hopefully useful guidelines to effective social policy that can be implemented. The approach of counting the number of men and women in different areas and institutions is very limited but is typically treated as a starting gender equality measure.

The largest part of each published GEP is comprised of objectives and measures planned regarding improving gender equality at the university. Gender equality is one of the key areas of focus of the United Nations' Sustainable Development Goals (SDGs), and universities play an important role in promoting gender equality through their policies, programs, and initiatives. Many universities around the world have developed gender equality plans or strategies that are aligned with the SDGs. GEPs of Croatian public universities explicitly mention at least four of the following:

- SDG 4: Quality Education - This goal emphasizes the importance of providing quality education to both girls and boys, and eliminating gender disparities in education.
- SDG 5: Gender Equality - This goal is focused on ending all forms of discrimination and violence against women and girls, and ensuring their full and equal participation in all spheres of life.

- SDG 8: Decent Work and Economic Growth - This goal is focused on promoting decent work and economic growth for all, including women.
- SDG 10: Reduced Inequalities - This goal aims to reduce inequalities in all forms, including gender inequality.
- SDG 16: Peace, Justice, and Strong Institutions - This goal emphasizes the importance of promoting gender equality in all aspects of society, including in the justice system and in the institutions that govern society.

The goals and objectives repeatedly listed in respective GEPs all address the following:

1. Development of the gender equality system at the university/institutional culture of gender equality;
2. Gender equality in employment and career;
3. Integration of gender dimension in research and education;
4. Gender balance in management and decision making process;
5. Work life balance/balance of work obligations and private life;
6. Prevention of gender violence and sexual harassment/zero tolerance of gender-based discrimination and violence.

All GEPS plan to monitor the implementation of the plan and publish regular reports on this.

Measures and activities foreseen in all GEPs can be grouped into several broad categories:

1. Legal such as development of protocols and rulebooks, promoting gender equality policies, institutional gender equality development;
2. Establishing bodies in charge of gender equality at the universities, formation of a funding system to support gender mainstreaming activities;
3. Implementation of systematic data collection on a yearly basis, encouragement of gender-sensitive research;
4. Analysis of possible gaps regarding work/life balance of all employees and students, encouragement of work rights use regarding parental leave;
5. Formation of work group for gender implementation in educational content;
6. Gender-sensitive employment system, development of strategic plans regarding career evaluation and gender balance in institutional commissions, reducing income inequality;
7. Education for teaching, non-teaching staff and students, gender mainstreaming workshops;
8. Raising awareness of zero tolerance toward gender based violence, university as “safe place”, education about consequences of gender-based violence, elimination of gender stereotypes and prejudices;
9. Student inclusion in GE process;
10. Promotional campaigns.

To address the third research question connected to wider social development processes, the analysis of all documents revealed that sustainability development goals formulated by the UN until 2030 are seen as crucial links that connect the goal of gender equality to general perspective of human rights, level of maturity of democratic culture, global social justice, peace and quality education. Empowering women at all levels is a sign of civilizational development of any environment and is seen as crucial in establishing healthy communities. The role of the university is thereby very important and widely socially and culturally, not only academically, consequential. By integrating the SDGs into their gender equality plans, universities can contribute to the achievement of these global goals, while also promoting a more equitable and just society for all. Of course, one size fits all approach deserves at least

moderate scepticism and it is necessary to develop contextualized, culturally informed and locally specific answers and measures to development goals that are sustainable.

5. Conclusion

This paper has presented a comprehensive qualitative document analysis of gender equality plans of Croatian public universities led by questions about the main objectives set there, measures planned to achieve them, the existing gender structure at institutions prior to passing GEPS and the relationship of gender mainstreaming and gender equality at the university to wider social, economic and cultural development. The findings of this study reveal that all universities have passed in 2021, 2022 or 2023 and published online their GEPs, that they all follow European legislation and frameworks, UN SDGs and Croatian legal framework and that they offer a comparable set of objectives and measures. The data describing the gender structure at universities before passing GEPs show there is feminization and parallel glass ceiling, though not everywhere. The objectives and measures refer to the development of the gender equality system and institutional culture, gender equality in employment and career, education content, research, leadership positions and decision-making, work life balance and zero tolerance for gender-based discrimination and violence. Wider development connection is found in UN SDGs, human rights, and democratic culture.

It is encouraging to note that Croatian public universities have developed comprehensive gender equality plans and are making efforts towards implementing them. The implementation of these plans requires a multi-stakeholder approach, including the participation of students, faculty, administrators, and policymakers. Achieving gender equality in higher education institutions in Croatia is a crucial step towards promoting sustainable development and social justice. This requires a concerted effort by all stakeholders to create an inclusive and equitable environment for all employees and students, regardless of their gender.

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THE RELATIONSHIP BETWEEN SOCIOECONOMIC CHARACTERISTICS AND ATTITUDES TOWARD THE ICT USE IN CHILDREN EDUCATION

ABSTRACT

Socioeconomic background and other socio-economic factors attract attention and are explored in various research areas. It is known that they have a great influence on the health of the individual. However, they also play a non-negligible role in education, as some researchers have found that the academic performance of students is influenced by the socioeconomic characteristics of the families from which the students come, in addition to numerous other factors, and that the consequences that less favorable socioeconomic characteristics can have on an individual's life can be long-lasting. This is not surprising, because the influence of the family on the overall development of the child and thus on his academic performance and attitudes is undeniable. Since the strong influence of the development of information and communication technologies in the educational sector is evident and can be seen even in the earliest stages of formal education, the focus of this study was to investigate the relationship between some socioeconomic characteristics and attitudes toward the use of information and communication technologies in children's education. An online survey was conducted and analysis of data obtained from 190 participants revealed some interesting correlations. The results suggest that there is a relationship between self-assessed socioeconomic status and perceptions of the use of educational computer games, as well as between current employment status and attitudes toward the use of information and communication technology in learning. These findings may help educators and others directly involved in the education system decipher the extent to which socioeconomic factors influence education.

Key words: *attitudes, children, education, ICT, socioeconomic characteristics.*

1. Introduction

There are many people who are so materially disadvantaged that they struggle to meet even their most basic needs, and there are even more people who struggle to maintain even a minimally adequate standard of living (Bilić, 2016). Education is widely considered the most effective means of lifting people out of low socioeconomic circumstances and leading them to career success (Alam & Forhad, 2022), and education and socioeconomic status have a mutually symbiotic relationship (Kincaid & Sullivan, 2017). Digital literacy is one of the fundamental skills of the 21st century, without which professional and personal growth and

development are almost unthinkable. The development of information and communication technologies (ICTs) in recent decades has provided almost instant access to information, accelerating and facilitating daily life and work. Today's generations are surrounded by digital devices from an early age and are growing up in a digital environment. Since the effective use of ICT requires the fulfillment of certain conditions (ownership of devices, Internet access, speed of Internet access, etc.), there is a possibility that socioeconomic characteristics will influence both attitudes toward the use of ICT in everyday life and in the education of students. ICT use at home and discussion of ICT with family members are recognized as important process indicators of computer and information literacy acquisition (Eickelmann et al., 2019). According to ecological systems theory, people exist in a variety of nested environmental systems, and the interactions between them and their environment influence how they develop and how they can adapt (Bronfenbrenner, 1979; Bronfenbrenner, 1986). Bronfenbrenner (1986) asserts that there are three major environmental systems that can act as sources of external influences on families, and these three systems can be used to distinguish research perspectives. According to the mesosystem models, although the family is the primary environment in which human development occurs, it is only one of several contexts in which developmental processes can and do occur. The processes occurring in many situations are interdependent. The situation at home can affect a child's performance at school and vice versa. Both what happens in the other environments where children spend their time and what happens in the other environments where their parents live have an impact on the psychological development of children in the family. Children typically have limited access to their parents' social network, which includes their friends and acquaintances. Exosystems are environments that are "outside" the developing individual. Since the mid-1970s, an increasing number of researchers have used study methods that allow analysis of the dynamic relationship between temporal changes in the environment and the person. Bronfenbrenner (1986) proposed the term chronosystem to refer to a research model that makes it possible to study the influence of temporal changes (and continuities) in the environment in which the person lives on the person's development.

Socioeconomic status, which is determined by the position of an individual, family, or community in relation to other groups in their neighbourhood or in society (Green, 1970; Conger & Donnellan, 2007), is one of the direct and significant environments that influence family functioning (Sun, et al., 2021). According to Eccles' (1983) expected value model and numerous longitudinal studies, parents also play a crucial role in shaping their children's beliefs. Children's experiences are structured by parents in different ways, which should affect values for self and others, skill development, preferences, and choices. Jacobs & Eccles (2020) found that exogenous characteristics of children and families (such as parents' income, education, child gender, and age) primarily influence parents' perceptions of their children's interests and abilities, as well as parents' value for the activity domain, which in turn affects the experiences parents provide their children. In addition, parents model actions that children may later copy and incorporate into their own repertoires. Socialization experiences influence children's perceptions, shape their attitudes, and parents have a significant impact on how task values develop across a range of activity domains (Jacobs & Eccles, 2020). Parents' views on information and communication technology (ICT) may affect how they instruct their children to use computers (Sun, et al., 2021). Therefore, the focus of this study was to investigate the relationship between some socioeconomic characteristics and participants' attitudes toward the use of ICT in children's education.

2. Literature preview

One of the most important components of ecological or sociocultural learning theories is socioeconomic status, which measures a household's material and cultural capital (Bronfenbrenner & Morris, 2006; Lee, 2016).

There are numerous studies on the impact of socioeconomic status on the acquisition of educational outcomes, digital skills, and the development of digital literacy. For example, in a comprehensive study involving two million students over a decade, Suna et al. (2020) analyzed the effects of school type and socioeconomic status on students' academic achievement. The results showed that students from private schools with more favorable socioeconomic backgrounds performed better in language, arithmetic, and science.

Poon (2020) examined the extent to which children of different socioeconomic status differ in their academic achievement in three core subjects; (2) the differences between the two groups in parental expectations, parental engagement, and child engagement; and (3) the mediating role of parental engagement and their expectations and child engagement in explaining how socioeconomic status affects children's academic achievement. Between the low and medium socioeconomic status groups, the results showed significant differences in parental engagement and expectations, student engagement, and academic achievement in language (Chinese and English subjects). According to his research, there may be significant parental expectations and commitment as well as children's engagement that mediate the relationship between socioeconomic status and academic achievement.

In Japan, Tobishima (2020) examined socioeconomic and gender inequalities in adolescents' digital skills. The results showed that adolescents' perceptions of ICT skills were statistically significantly influenced by gender and family socioeconomic status. Specifically, girls in the study reported lower levels of perceived ICT skills than boys, and family socioeconomic status had a positive influence on adolescents' perceived ICT skills. The results also showed that the influence of family socioeconomic status on adolescents' reported ICT competency levels was mediated to some extent by the availability of ICT at home. However, the influence of socioeconomic status on adolescents' reported ICT skill level was reduced by the amount of time they spent online. In addition, girls had a weaker influence on adolescents' reported ICT skills in terms of ICT access at home and time spent online than boys. Presumably, girls are more inclined than boys to use ICT for communication, which may not improve their digital skills.

Chiu (2020) examined how socioeconomic status and ICT use outside the classroom affect models of ICT use that lead to positive learning outcomes. Four models were created based on ecological theories of educational technology. Model A found that parallel ICT use has weak effects on learning outcomes, while Model B has the additional effects of ICT use outside of school. Models C and D add an additional mediation by socioeconomic status, reinforcing the effects of in-school ICT use in Models A and B, respectively, as socioeconomic status has a stable relationship with achievement. The results also show that models mediated by socioeconomic status are better suited to the data than models without mediation by socioeconomic status.

Murphy (2020) examined the effects of socioeconomic status and school location on technology education. Students from metropolitan and non-metropolitan areas performed similarly academically in technology courses, but there were significant variations in engagement.

Compared to students attending metropolitan schools, non-metropolitan students were more likely to enroll in design, technology, and engineering courses. Although nonmetropolitan students enrolled in digital technology courses at a similar rate as metropolitan students, they were less likely to have access to these courses. Compared to students from high socioeconomic status backgrounds, students from lower socioeconomic status schools typically performed worse in technology courses and the probability of offering technology courses was lowest in schools with the lowest socioeconomic status.

Pitsia (2022) used data from the 2012 and 2015 cycles of the Programme for International Student Assessment (PISA) to examine the mathematics and science skills of post-primary pupils in Ireland. Results showed that student engagement and self-confidence, as well as socioeconomic status, were consistently associated with good performance in mathematics and science. There were notable differences in the socioeconomic background of the students' families for the two achievement groups in both subjects, with the high-achieving students coming from more financially advantaged families than their lower-achieving classmates. This finding suggests that factors such as household assets (e.g., books in the home), parents' occupations, and educational background play an important role in the likelihood that students will be represented in math and science.

The relationship between socioeconomic status and students' ICT literacy was summarized in a meta-analysis by Scherer and Siddiq (2019). They discovered a positive and significant relationship between socioeconomic status and performance-based measures of ICT literacy, revealing the existence of educational gaps in this new area. Although these differences existed, they were not as striking in the current meta-analysis as they were in other, more conventional domains such as reading, mathematics, and science. This finding is encouraging because it suggests that technology-based skills are based less on prior knowledge and more on the active generation of knowledge and its application in problem-solving situations. The strength of the correlation between socioeconomic status and ICT literacy varied across studies. This difference could be due in part to the way the studies were designed and how the measurements were taken. These findings highlight the importance of carefully designed studies with careful sampling procedures to identify educational gaps in ICT literacy.

Sun et al. (2021) investigated the role of socioeconomic status in children and adolescents' use of social networks by considering parents' attitudes and behaviors toward ICT. Their results showed that socioeconomic status was negatively associated with social networking sites addiction, that active parental mediation mediated this correlation, and that this mediation effect was moderated by parental attitudes toward ICT. Specifically, the correlation between socioeconomic status and active parental mediation was weaker for parents who had more positive attitudes toward ICT.

Li et al. (2020) examined the correlations between four different forms of parental engagement at home and family socioeconomic status as well as the mediating role of parental attitudes and expectations. Results showed that different households employ various domestic parental involvement. Families of low socioeconomic status tend to promote strict discipline, whereas families of high socioeconomic status tend to enhance parental support for homework, parent-child dialog, and parental time with children. According to their research, parental expectations and attitudes drastically limit the amount of time low socioeconomic status families spend at home with their children's parents, especially when it comes to strict discipline and parent-child interaction.

According to Bordialba and Bochaca (2019), the use of ICT for family-school communication was more widespread among parents and teachers who had more positive attitudes toward it. Edmunds et al. (2010) used a technology acceptance model to examine how students interact with ICT. They examined how subject study, work, and leisure time affect attitudes toward and acceptance of technology. Their findings suggest that while usefulness and ease of use are important aspects of students' attitudes toward technology in each of the three contexts, ICT is viewed most positively in the context of work, and work is an important motivator for technology use in other situations. Tahir and Arif's (2015) study provides a thorough examination of parents' attitudes toward the use of mobile technology, particularly educational applications. According to the study, many parents of primary school-aged children use mobile devices. They showed that the majority of parents use and value this type of technological experience for children because they believe that their children have learned a lot through educational apps.

As can be seen, most of the research to date has focused on examining the relationship between socioeconomic status and student achievement or learning outcomes in specific domains. Several studies have demonstrated a relationship between a person's attitude toward ICT and his or her ICT-related behavior. However, there is a dearth of research that focuses on the impact of socioeconomic status on the attitudes of some educational stakeholders toward the use of ICT and gamification in education.

3. Methodology

During the winter semester of the 2022/2023 academic year, an online questionnaire was created that aimed to investigate the relationship between some socioeconomic characteristics and attitudes toward the use of information and communication technology (ICT) in children's education. An alternative sampling method was used and participants for this study were recruited through the social networks Facebook and Viber, i.e., online convenience sampling was used. A total of 190 participants accepted the invitation and participated in the study. All participants were familiarized with the aim and purpose of the study prior to their participation, as well as the fact that this was an anonymous study in which they could participate and discontinue at any time without consequences. The majority of participants were female (76.32%) and slightly less than two-thirds of them (65.79%) were between 30 and 45 years old.

An online questionnaire consisted of two question blocks. The first addressed basic demographic and socioeconomic questions (16 questions), and the second focused on participants' opinions about the use of ICT, digital educational content, and gamification in education and consisted of 20 statements to which respondents indicated their agreement on a scale of 1 (strongly disagree) to 5 (strongly agree).

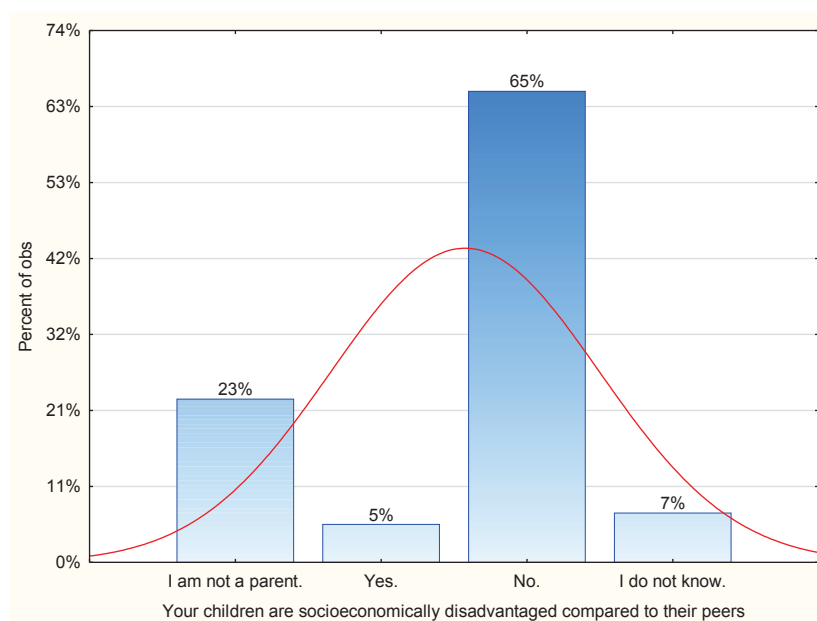
Data collected were analysed with Statistica 13 and SPSS software. For determining if there is a correlation between variables Chi-square test and Fisher-Freeman-Halton exact test, in case less than 80% of expected number of observation were higher than 5, were applied.

4. Results

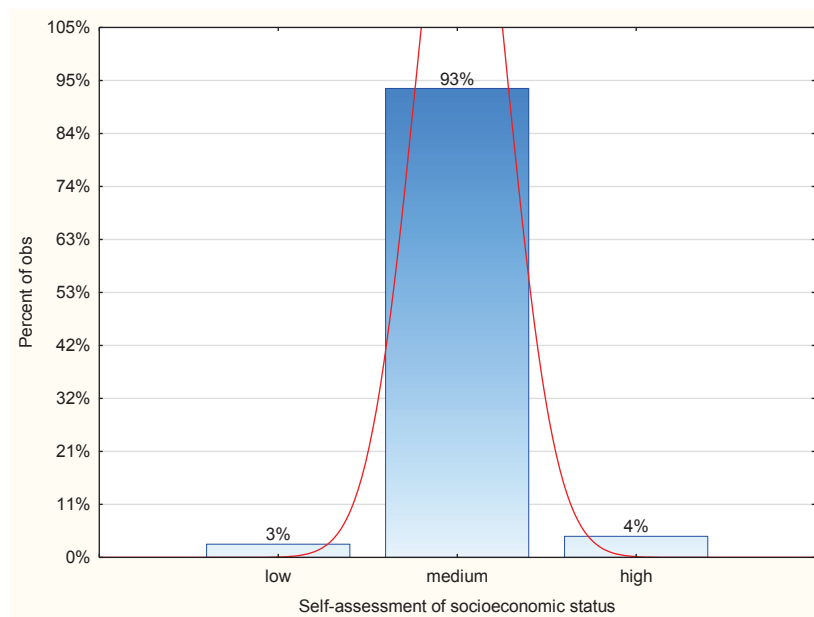
The results show that 41.05% of the participants have a university degree, the majority of them (84.74%) are currently employed, 23.16% work as professors, teachers and education experts,

35.78% of them stated that there are 4 members in their household, 36.32% of the participants have two children and 26.84% of them have two children enrolled in the Croatian formal education system. Most participants (65.26%) believe that their children are not socioeconomically disadvantaged compared to their peers (see Figure 1), and the majority of participants (93.16%) self-assess their socioeconomic status as medium (see Figure 2). Slightly less than 38% (37.89%) of the participants reported having a monthly household income of more than 1,680 € and 43.68% of them estimated monthly household expenses to be between from 560 € to 1680 €. The majority of participants (72.63%) do not have a family farm or their own business, almost all participants (99.47%) have internet access at home and more than a half of participants with children (57.37%) reported that only parents in their household have their own device to access the internet.

Figure 1: Participants estimation whether their children are in a less favorable socioeconomic situation compared to their peers



Source: Authors

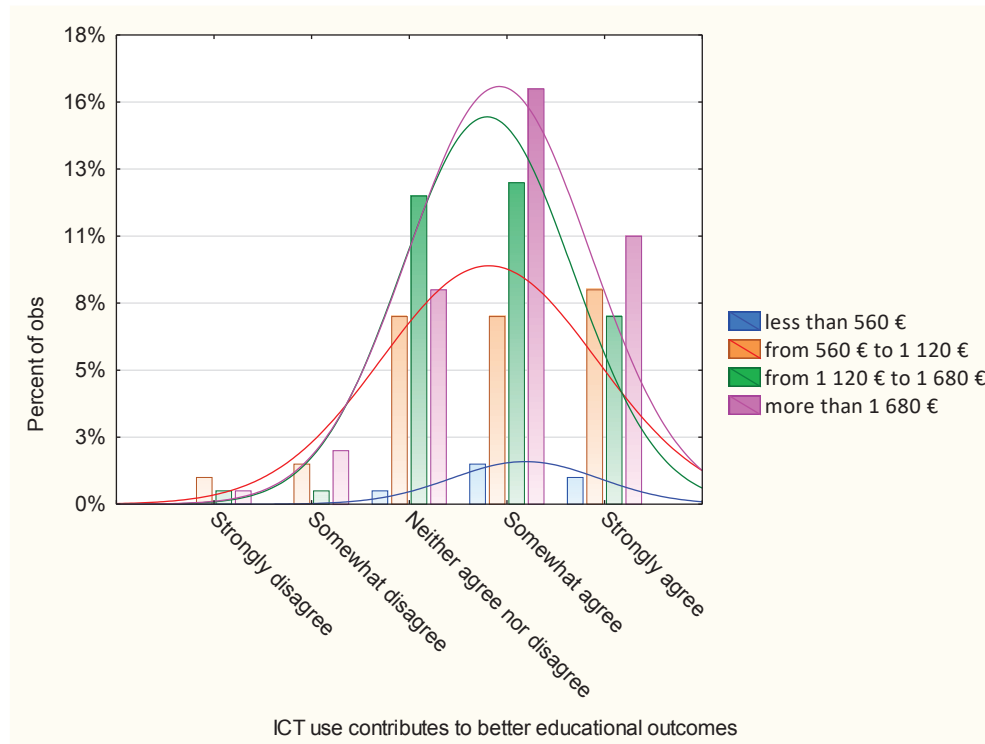
Figure 2: Self-assess socioeconomic status of participants

Source: Authors

When it comes to their attitudes related to the use of information and communication technology (ICT), digital educational content and gamification in education, only 2.11% participants strongly disagreed that it is important to give children access to information on the Internet. Less than half of the respondents (47.37%) were neutral about the positive impact of ICT on reducing socioeconomic inequality among children, 30% of them (partially agreed with the statement *I notice health problems in children caused by excessive use of information and communication technology.*, only 2.63% strongly agreed that children should be able to access the Internet whenever they want and the largest number of them (41.05%) strongly agreed that it is important in education to follow the latest trends in the technological field. When asked to assess if children use the Internet too much for educational purposes, 38.42% of respondents remained neutral, and 42.63% had a neutral attitude toward the statement that the impact of ICT on inclusive education is exceptional. More than half of the respondents agreed (strongly or partially) that the use of ICT contributes to better educational outcomes (65.26%), facilitates learning (66.84%), makes children less social (58.95%), and that digital educational materials make certain concepts easier to understand (64.73%). In addition, more than half of the respondents supported the use of ICT in the classroom (63.68%), 35.26% remained neutral concerning the statement that using computer games for teaching is a waste of time, and also 36.84% strongly disagreed with the statement that it is unnecessary to use digital educational games and other digital educational materials in the classroom. Also, 44.21% of the respondents remained neutral on the view that the use of gamification creates a student-centered learning environment, more than half (58.95%) strongly disagreed with the statement that learning should not be fun, and 40.53% strongly disagreed with the statement that the use of ICT and digital educational materials is useful at the elementary level but not at higher levels of education. Most respondents (72.63%) strongly or partially agreed with the statement that the use of information and communication technology in education brings many benefits, but 40.52% of respondents strongly or partially agreed that there is no need for the use of ICT in working with children in kindergartens or preschools.

Figure 3 shows the distinctions between participants agreement with statement that the use of ICT contributes to better results in education according to their monthly incomes.

Figure 3: ICT use contributes to better educational outcomes categorized by average monthly household income



Source: Authors

At the 5% level of significance, the results of Chi-square test showed statistically significant correlation between variables, but because of the expected number of observation, Fisher-Freeman-Halton exact test needed to be used in order to confirm results and it showed at the same level of significance that there is statistically significant correlation on between gender and the following variables: current employment (two-sided Fisher-Freeman-Halton exact test, $p=.025$), average monthly income (two-sided Fisher-Freeman-Halton exact test, $p=.019$) and agreement with statements regarding children use too much ICT in their education (two-sided Fisher-Freeman-Halton exact test, $p=.033$), ICT facilitates learning (two-sided Fisher-Freeman-Halton exact test, $p=.030$), support the use of ICT in teaching (two-sided Fisher-Freeman-Halton exact test, $p=.011$), using educational games is a waste of time (two-sided Fisher-Freeman-Halton exact test, $p=.010$), the usefulness of use of ICT in primary school education, but not at higher levels of education (two-sided Fisher-Freeman-Halton exact test, $p=.002$).

Also, at the same level of significance, Fisher-Freeman-Halton exact test showed that there is a statistically significant correlation on between age and level of education (two-tailed, $p=.008$), current employment (two-tailed, $p=.000$) and average monthly outcome (two-tailed, $p=.01$).

When correlation on between current employment and variables concerning the use of ICT, digital educational content and gamification in education was examined, this test revealed statistically significant correlation on at 5% level of significance between this variable and: attitude that ICT facilitates learning (two-tailed, $p=.047$), agreement with the statement that it is unnecessary to use digital educational games and other digital educational materials in classes

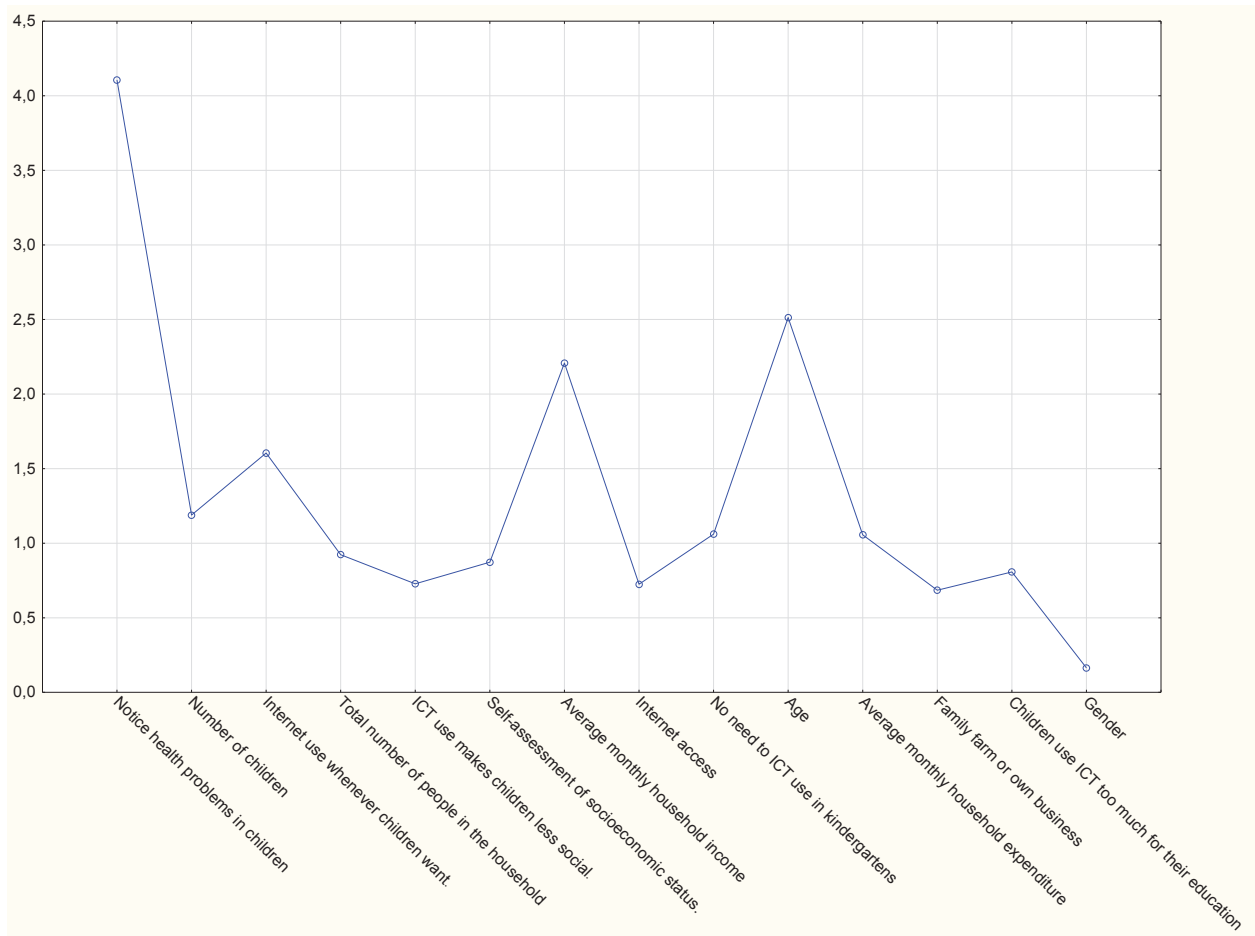
(two-tailed, $p=.02$) and that there are numerous benefits of using ICT in education (two-tailed, $p=.015$).

Moreover, Fisher-Freeman-Halton exact test also showed that at the level of significance of 0.05 there is a statistically significant correlation on between self-assessed socioeconomic status and agreement with the statements that the use of educational computer games is waste of time (two-tailed, $p=.001$) and that participants support the use of ICT in teaching (two-tailed, $p=.018$).

To see if participants support for the use of ICT in classroom could be distinguished only by using socioeconomic and other variables, neural networks were applied and participants were divided into two categories according to the degree of their agreement with the statement *I support the use of ICT in classroom* where category 1 included those who agreed (strongly or partially) with this statement (63.68%) and category 0 others (36.32%). This variable was the target variable for neural network modeling.

Chi-square test and Fisher-Freeman-Halton exact test were again used to see if this new variable has a statistically significant correlation on with other variables (at 5% level of significance) and it revealed a statistically significant correlation with: level of education (two-sided Fisher-Freeman-Halton exact test, $p=.038$), current employment status (two-sided Fisher-Freeman-Halton exact test, $p=.041$) and a large number of statements regarding the use of ICT (*It is important to give children access to information on the Internet* (two-sided Fisher-Freeman-Halton exact test, $p=.001$), *ICT positively affects the reduction of socioeconomic inequality among children* (two-sided Fisher-Freeman-Halton exact test, $p=.043$), *It is important in education to follow the latest trends in the technological field* ($\chi^2(4)=27.34$, $p=.000$, Cramer's $V=.38$), *The importance of ICT in inclusive education is exceptional* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *ICT use contributes to better educational outcomes* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *ICT facilitates learning* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *The use of ICT in teaching distracts attention from important things* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *Using educational computer games is a waste of time* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *It is unnecessary to use digital educational games and other digital educational materials in classes* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *Digital educational materials make certain concepts easier to understand* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *I believe that using gamification creates a student-centered learning environment* (two-sided Fisher-Freeman-Halton exact test, $p=.000$), *Learning shouldn't be fun* ($\chi^2(4)=11.95$, $p=.016$, Cramer's $V=.25$), *The use of ICT and digital educational materials is useful in primary school education, but not at higher levels of education* ($\chi^2(4)=32.68$, $p=.000$, Cramer's $V=.42$), *There are numerous benefits of using ICT in education* (two-sided Fisher-Freeman-Halton exact test, $p=.000$)). All variables that showed statistically significant correlation on with the target variable were excluded from the modeling process. The overall sample was randomly divided into train (70%), test (20%) and validation (10%) subsample and 200 Multilayer Perceptron (MLP) and Radial Basis Function (RBF) neural networks were trained, tested and validated. The neural network model with the best result was obtained with MLP which used entropy as error function, exponential function as hidden activation function and Softmax function as output activation. This model had total classification accuracy of 63.15% and was able to correctly classify 69.23% participants who supported the use of ICT in classroom and only 50% of those who do not support it. Sensitivity analysis showed that the variable *I notice health problems in children caused by excessive use of ICT* had the highest impact on the accuracy of this model followed by variables *age* and *average estimated monthly income* (see Figure 4).

Figure 4: The influence of variables on the success of the model



Source: Authors

5. Discussion and conclusion

This study's main objective was to investigate the correlation between some socioeconomic factors and attitudes toward the use of information and communication technology in education. The results of this study show that, overall, respondents have a positive attitude toward the use of ICT in children's education. They are in favor of the use of ICT, digital educational games and digital teaching materials at all levels of education (with the exception of preschool) and recognize the benefits of using ICT in education, such as easier understanding of certain concepts, better educational outcomes and easier learning. In addition, they believe that learning should be fun and recognize the importance of ICT use in inclusive education but point to health problems in children caused by excessive ICT use and reduced socialization of children.

Findings reveal that current employment and self-assessed socioeconomic status have an effect on participants' attitudes toward the ICT use and its perceived benefits in education. Also, the MLP neural network model developed to uncover hidden patterns among these variables identified estimated monthly income as one of the three variables that had the greatest impact on its effectiveness although it had total classification accuracy of 63.15%. These results clearly show that socioeconomic indicators should not be disregarded, even with regard to children's education, and that they should be further investigated. This finding can be indirectly linked to

specific studies, although most previous research has focused on the relationship between socioeconomic status and student achievement or learning outcomes in specific domains. For example, according to Petscher (2009), there is a relationship between reading and achievement among primary school students. In Perera's (2014) study, parents' attitudes toward science have a favorable and statistically significant impact on their children's achievement in the subject, as children from low socioeconomic households learn as much as children from high socioeconomic households. This indicates that achievement equity is not affected by more positive family attitudes toward science. In addition, Mohr-Schroeder et al. (2017) found that parents' and students' attitudes toward mathematics are statistically significantly positively correlated. Children's perspectives on mathematics were significantly influenced by their parents. During the 2020 school closures, Osorio et al. (2021) studied 4,600 parent questionnaires from 19 different countries. They utilized three multiple regression models to assess the impact of parents' technology approval and utilization on their children's academic performance. A country fixed effect-controlled unconditional model was estimated first ($R^2 = 0.075$). The second model ($R^2=0.250$) examined how parental technology acceptance and socioeconomic status influence parental involvement in their children's learning. The final model ($R^2 = 0.273$) examined the relationship between parental approval and use of technology and parental involvement in how their kids learn, controlling for family and child characteristics and the country fixed effect. The results indicate that parents grapple with complex educational technology, which can hinder their participation in their children's education. Despite technological obstacles, many use it to facilitate learning. The results also show that parents in some countries are concerned about their children's lack of access to technology or educational resources, even when their economic status has little influence on parental engagement.

Since the main focus of the study was to determine the relationship between some socioeconomic characteristics and attitudes toward the use of ICT in the education of children, some participants in this study are childless due to different life circumstances. However, the opinions of voluntarily or involuntarily childless individuals on this topic are also important and should not be ignored. Even if they are not parents, they are engaged with children through their work or are their relatives or neighbours and can often have a more objective view of how much time children spend in front of screens in education purpose and the impact this has.

Although schools and other educational institutions do not have a direct impact on improving students' socioeconomic status, efforts should be increased by all education stakeholders to reduce the impact of socioeconomic status on student learning outcomes and achievement.

The limitations of this study mainly relate to the sample size, because although participation in the study was anonymous, the response rate was not very high. In addition, data were collected via an online questionnaire, so only participants with Internet access could respond. Therefore, additional efforts should be made in future studies to motivate potential subjects to participate in the study.

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A scientific paper

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THE HIGHER EDUCATION SOCIAL ORIENTATION CONSTRUCT: PRELIMINARY RESEARCH OF THE RELATIONSHIP WITH THE ORGANIZATIONAL CULTURE IN CROATIA

ABSTRACT

The paper aims to analyze the social orientation of higher education institutions in terms of their relationship to organizational culture. We define the social orientation of a higher education institution in terms of its efforts to promote human rights, social equality, and reduction of poverty, both within the institution and by communicating with the external environment. This effort has been empirically evaluated by students, who were also asked to evaluate the institution's organizational culture using Cameron and Quinn's OCAI framework. In this way, students' perceptions of their school's social orientation are matched to their perception of its organizational culture. The empirical research is based on an online survey administered at the Faculty of Economics, Business and Tourism Split and Marko Marulić Polytechnic in Knin, with 108 students responding. Statistical analysis of the survey answers leads to the conclusions on how the student body interprets the interpersonal relationships and processes within the higher education institutions and links them to the socially responsible functioning of the institution.

Key words: *social orientation, organizational culture, higher education institutions, statistical analysis, Croatia.*

1. Introduction

The rise of the knowledge economy is a significant challenge in transforming the university's mission paradigm (Ruben et al., 2017). Educational models and the value of knowledge from the social perspective are changing. Even the academic community finds itself at a crossroads between teaching, research, and the university's third mission (UTM), implying a third role or a third fundamental function for universities beyond the teaching and research areas, focusing on the university contribution to socio-economic development (Brennan, 2008).

Over time, universities were increasingly expected to include UTM in their activities, in addition to standard lectures and research processes, to contribute to the local community and society (Urdari et al., 2017). This implies that universities need to: (i) become initiators of changes that disclose through the transfer of knowledge & technologies to industry and broader society and (ii) contribute more efficiently to the social, economic, and cultural development of their communities and broader society (Secundo et al., 2017; Agasisti et al., 2019). UTM strengthens the dialogue between the university, industry, government, and society, based on which the university eventually creates a more socially oriented environment for the growth and development of society as a whole (Vakkuri, 2004). UTM is a complex phenomenon whose development began several decades ago. Nevertheless, the UTM remain underrepresented in higher education research (Predazzi, 2012; Giuri et al., 2019).

UTM also repositions the role of higher education in terms of its activities, i.e., how they perform mass higher education, professional specialization, and research (Laredo, 2007). There is a lack of critical reflection on how the universities have adopted and incorporated UTM into their core activities, which is essential for current policy and academic debates (Benneworth et al., 2016).

The UTM concept is similar to other theoretical constructs that analyze a university's prosocial and community-oriented activities or another academic organization. In the profit-sector literature, Corporate Social Responsibility (CSR) has been firmly established as a dominant managerial and organizational responsibility paradigm. It implies that corporations need to take account of their stakeholders' interests instead of focusing only on the shareholders' profit maximization (Freeman, 1984). During its historical development, the CSR concept evolved into a framework addressing equity and inclusion of widely defined stakeholder groups in various organizations (Carroll, 2008).

The idea of a responsible university is mirrored by a group of different theoretical orientations, including the discussions of market orientation in higher education (Dwyer, 2022), which has already been empirically applied to the analysis of Croatian higher education (Pavičić et al., 2009). This discussion opens the issue of whether the commercialization of higher education is an inevitable aspect of neoliberal development (Kleinman et al., 2013) and whether an alternative development path is possible.

The alternative(s) include different approaches to developing the organization's and its students' prosocial orientation (Brandenberger and Bowman, 2015) and other forms of changing the university culture toward a more inclusive and socially oriented one. This might involve formal educational involvement in community charities, i.e., service-learning (Salam et al., 2019), or other forms of ethical leadership, which might influence students' moral development (Nejati and Shafaei, 2018).

Unfortunately, many studies deal with the role of universities only from the perspective of two standard mission components, i.e., teaching and research, or employing the labor market perspective, i.e., whether university graduates' knowledge and skill profiles correspond to the employers' requirements (König and Maškarin Ribarić, 2019). Respectively, less attention has been paid to identifying and analyzing university strategies in UTM (Giuri et al., 2019) or other theoretical concepts and orientations describing contemporary universities' prosocial orientation, responsibility, and involvement.

The role of university organizational culture and how it shapes the behavior of university staff (Lacatus, 2013) has been neglected in the literature on higher education social orientation and

responsibility. This paper will address this topic, which empirically reviews the relationship of the two variables, using the popular competing values framework for conceptualizing organizational culture (Fralinger and Olson, 2007; Lacatus, 2013).

The paper starts with an introduction, followed by the theoretical elaboration of the third mission and the related literature. The second section refers to the empirical research, including the methodology and results. The last section covers the discussion with concluding remarks, main research limitations, and future perspectives analysis.

2. Theoretical background

During the last several decades, different economic, political and social changes have taken place and consequently shifted the focus of contemporary universities to market orientation and commercialization of educational and research processes (Rasmussen et al., 2006; Molesworth et al., 2011). These practices are confronted by the requirements for universities to become more oriented toward stakeholders (Pavičić et al., 2009; Llonch et al., 2016) and socially involved (Jongbloed et al., 2008). To respond to such changes, universities start implementing a series of reforms (Vasilescu et al., 2010), both institutional and voluntary.

To harmonize European higher education, universities in the wider area have established a common European legal framework (the Bologna process), coordinating the national university systems (Larsen et al., 2015). Although international comparability and correspondence to the labor market needs were major objectives of the reform, it also encouraged civic and social values in higher education. It included current social issues and challenges in university curricula and programs (Seto-Pamies et al., 2011).

Other institutional initiatives were developed to support interactions between universities and society to respond to the specific demands of different stakeholders (Brennan, 2008). E.g., the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2004 highlighted education as the foundation of a more sustainable society and, consequently, encouraged the integration of sustainable development into educational systems (Velasquez et al., 2005).

A similar initiative was created by the United Nations (UN) and partners from the corporate sector, resulting in the Principles for Responsible Management Education (UNPRME) concept of responsible business and management education (Haertle et al., 2017). UNPRME should lead toward the development of more socially responsible business professionals (Godemann et al., 2014) and encourage inter-sectoral cooperation and stakeholder coordination (Sebhatu, 2021). Such initiatives share a broader perspective of increased university social orientation, which should become more inclusive regarding students' civic education and awareness (Wise et al., 2020) and be oriented toward achieving ethical and prosocial outcomes (Ryan, 2017).

Teaching and university research are called upon to play an active role in solving major social problems. This line of research starts with an influential volume (Gibbons et al., 1994), proposing that the traditional production of knowledge, driven by the concerns of scientific disciplines and the academic independence of researchers and research institutions, should be radically transformed. The described settings for academic knowledge production ('Mode 1') were to be replaced by a new paradigm ('Mode 2'), which is interdisciplinary and driven by application and partnerships. However, 'Mode 2' also corresponds to the pressures of

globalization and commercialization (i.e., mass student enrolment) to research and higher education institutions. The 'Mode 2' knowledge production has been widely discussed and compared to different theoretical agendas, describing the social role of the university (Hessels and van Lente, 2008).

Out of those, the 'Triple Helix' model stands out by describing the dynamics of relationships and overlapping responsibilities among the three actors of knowledge production: university, industry, and government. The 'Triple Helix' proponents argue that the 'etatistic' model of the relationship among the actors (inherent to 'Mode 1' knowledge production) should be replaced by the flexible structuring of hybrid organizations involving actors from all three sectors. This should allow different levels of government and inter-governmental organizations to be involved in inter-sectoral partnerships with academic and industry actors, leaving ample space for innovation and creating entrepreneurial opportunities for all the actors (Etzkowitz and Leydesdorff, 2000).

The market- and opportunity-based knowledge production leads universities to contribute to economic development and growth as their 'third mission' – acknowledging the primary roles of teaching and research. Thus, Etzkowitz et al. (2000) see universities as transforming toward entrepreneurial organizations, serving the 'knowledge societies' needs. The hybridization of the 'Triple Helix' actors, pushing the government to serve as a 'venture capitalist,' industry to become more research- and knowledge-intensive, also requires the academic sector to adopt the market-driven concept, often described as the 'entrepreneurial university' (Etzkowitz, 2003). Such an academic organization would become a 'collective entrepreneur,' taking a more dynamic or central role in coordinating the government and industry sectors in the knowledge-producing processes (Etzkowitz et al., 2008).

Nevertheless, the UTM does not need to be related to commercialization and entrepreneurial transformation only, as its generic definition involves interaction and positive influence toward its socio-economic environment. Even the interpretation of the concept remains challenging, as it can refer to HEI's income production, regardless of the entrepreneurial context, as well as involvement in human and social development (Molas-Gallart and Castro-Martínez, 2007). This leaves ample space for reconsidering the 'Triple Helix' and the 'entrepreneurial university' models, calling for representation of a range of university stakeholders in the 'Mode 3' production of knowledge relevant to both the corporate sector and society (Carayannis and Campbell, 2012).

Therefore, it could be argued that the notions of the third mission, university social responsibility and inclusiveness, stakeholder and social orientation, could be summarized in terms of *social orientation*, in analogy to the social (market) orientation of nonprofit organizations (Sargeant et al., 2002, 46–47). Universities need to be *oriented toward multiple stakeholders/constituencies* (Padanyi and Gainer, 2004) or *communities*, according to Jongbloed et al. (2008). Such an orientation should have both external and internal components, which is implied by the market orientation theories, emphasizing the need to develop productive relationships with the customers/users (as an *external component* of the university orientation/responsibility) based on a range of *internal components*, including internal knowledge, inter-functional coordination and appropriate employee behavior (Lafferty and Hult, 2001).

Suppose a common denominator for the three internal components of social orientation is to be identified. In that case, it can be argued that the university (organizational) culture is to serve

as such since the very notion of culture denotes a "*historically pattern of meanings (...) expressed in symbolic forms*" (Geertz, 1973, 29). On the one hand, they include practical university management mechanisms, such as the definitions of strategy and mission, leadership, and employee socialization. On the other hand, culture also determines how employees interpret their (organizational) environment and relevant (market) orientation, and it also shapes their behavior (Tierney, 1988, 8). Culture can also serve as a barrier to market orientation in all kinds of organizations (Harris, 1996), which should be considered in this type of research.

Narver and Slater (1990), who theorized its central role in shaping organizational behavior oriented toward the customer (user) needs, recognize the described role of culture in determining the employee and organizational orientation toward the customers (users).

3. Research model and hypothesis

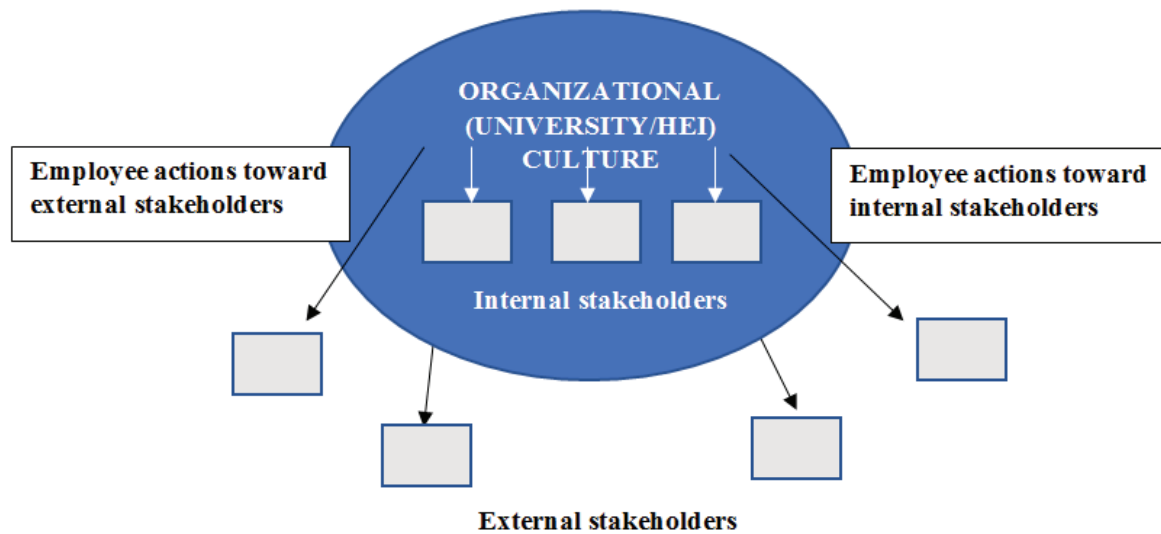
This study relies on the assumptions of the previously described theoretical concepts to propose the concept of *university, or, in a more generalized way – Higher Education Institution (HEI) social orientation*, describing the orientation of universities (HEIs) toward the promotion of human rights, social equality, reduction of poverty and other socially desirable outcomes.

In line with the social (market) orientation theories, the *university (HE) social orientation* recognizes the *university's (HEI) relationships with the relevant internal and external stakeholders*, leading both to *internally and externally (socially) recognized effects (outcomes)*. *Organizational (university/HEI) culture* is viewed as a *comprehensive enabling framework*, leading employees toward both internal and external socially desirable outcomes. Figure 1 presents the research model and the hypothesized relationships among its variables.

Empirical validation of the entire model is complex. It should be performed on extensive university staff and student samples in multiple countries since this is a preliminary study, intending to test the major relationship between the university (HEI) culture and its internal and *external social orientations*. Suppose this relationship is not confirmed, or, at least, some empirical variability of university (HEI) social orientation is not identified. In that case, pursuing further empirical research on the proposed topic does not make sense.

Therefore, the following *research hypothesis* will be tested in this study:

There is statistically significant empirical variability of university (HEI) social orientation toward internal and external stakeholders across different dominant university (HEI) organizational cultures.

Figure 1: Research model and hypothesized relationships among the variables

Source: Authors

4. Research methodology

The empirical data have been collected as a part of the student survey performed at the beginning of the 2022/2023 academic year (i.e., in autumn 2022). Two research constructs were measured: *the social orientation of universities, i.e., higher education institutions (HEIs)*, as described in the theoretical part of the paper, and *the organizational culture of universities, i.e., HEIs*. Social orientation was measured based on the previously validated and published research instrument (Petković et al., 2022). Three items have been adopted from the questionnaire, developed by the previously mentioned authors, and rephrased to describe HEI social orientation. Those three items include:

- (a) Assessment of the university (HEI) social orientation in its internal functioning,
- (b) Assessment of the university (HEI) social orientation contribution to the social environment and
- (c) Assessment of HEI cooperation with external stakeholders in implementing the social orientation.

All three items were measured on a Likert scale, with nine levels of agreement (four negative, neutral, and four positive levels), in analogy to the research instrument, which was used as a source of survey items. Overall social orientation has been computed using the SPSS statistical software package for Windows as a mean of the three survey items.

HEI (Organizational) Culture has been measured by using the well-established Cameron and Quinn's (2011) Competing Values Framework (i.e., OCAI - Organizational Culture Assessment Instrument). The used theoretical framework proved to be valuable for the evaluation of the organizational culture of HEIs in Poland (Dębski et al., 2020) and Turkey (Caliskan and Zhu, 2019) and in other organizations and industries, where it proved to serve as a valuable culture evaluation and change instrument (Cameron et al., 2022, 187-204). The translated version of their original instrument was used, as published by Cameron and Quinn (2011), and available

online¹, and modified the measurement scales. The nine-point measurement scales were used to achieve consistency with the first set of questions concerning HEIs' social orientation. The process of translation was based on the classical, two-step procedure. Firstly, we translated the questionnaire from English to Croatian, and consulted with a professor of English, regarding the validity of translation. Another professor of English language translated the questionnaire back from Croatian to English. For the items, where two translations did not match, we asked the advice of two English language professionals, how to correctly formulate the Croatian survey item.

Data were collected from a non-random sample of undergraduate students (2nd year of Bachelor studies) at the Faculty of Economics, Business and Tourism at the University of Split (76 students) and Polytechnic of Knin (31 students from the 2nd year of Bachelor studies). One student has not responded to the question about the institution they studied at.

The data collection instrument has been an anonymous Web-based form (Google Forms), which consisted of three parts: (a) Demographic characteristics of respondents; (b) Assessment of their HEI's social orientation; (c) Assessment of their HEI's organizational culture. Data were imported, and statistical analysis was performed in the IBM SPSS statistical software package for Windows.

5. Research results

5.1. Student demographics

There were 27.1% male and 72.9% female students, producing a rather considerable gender bias. However, this is common with student surveys in social science in Croatia and the broader region, as male students might have less motivation to fill in the social science surveys (Šerić and Garbin Praničević, 2018; Stupar-Rutenfrans et al. 2021). The majority of respondents, i.e., 63% study as full-time students (funded by the Ministry of Education & Science), 21.5% are self-funded full-time students, and 15% part-time students.

Regarding the social background, most students perceive themselves as middle-class (72.2%), only 2.8% as a lower, but 7.4% perceive being a part of a higher class, while 17.6% did not answer this question. Most students (73.1%) have at least some work experience, with 12% of respondents having some personal entrepreneurial experience, while 47.2% have an entrepreneurial family background.

While these results are probably too high compared to the average values for Croatian and regional students, it should be emphasized that the respondents were business students who volunteered to participate in the survey. Those with work and entrepreneurial experiences were more likely to participate due to a higher understanding of how the business curriculum is applied in business practice.

5.2. Empirical values of research constructs

As presented in Table 1, the HEI social orientation construct is measured on a scale with levels of measurement, which can be converted to the numeric values of one to nine due to the equidistance of the values on the Likert scale (Dobson and Mothersill, 1979). It is evident that the HEI social orientation for the surveyed sample, computed as a mean of its three components, has a modest positive value.

¹ See; <https://www.ocai-online.com/> (accessed 6 October 2022).

The modified OCAI instrument provides numerical values for the four organizational culture archetypes recognized by the underlying theoretical framework (clan, adhocracy, market, and hierarchy). Therefore, the dominant organizational culture has been established by comparing the four values and selecting the one with the highest numerical score. The dominant HEI organizational culture assessment has been recorded for each survey participant, with the descriptive statistics presented in Table 2.

Table 1: Mean values of the HEI social orientation construct

	N	Minimum	Maximum	Mean	Std. Deviation
Entire HEI activities reflect the principles of social orientation.	108	1	9	5.06	2.340
HEI popularizes social orientation in its community and society.	108	1	9	5.35	2.141
HEI cooperates with other stakeholders, including the government, in implementing social orientation.	108	1	9	5.34	2.243
The social orientation of a higher education institution	108	1.00	9.00	5.2500	1.88844

Source: Authors

As demonstrated by Table 2, in the two surveyed HEIs, students assessed the organizational culture to follow the clan prototype in 38.2% of cases (without regard to the participants, who did not provide valid answers). This culture type fosters cooperation based on committed leadership, human development, and participation. In 22.5% of cases, survey participants recognized the HEI organizational culture to follow the adhocracy archetype, which has a creative orientation, entrepreneurial and creative leaders, and commitment to developing vision, innovation, and new resources. In 23.6% of cases, organizational cultures in the two HEIs were recognized as hierarchical, i.e., based on controlling and formal power held by the leaders, who emphasize efficiency, consistency, being timely and following rules. In only 15.7% of cases, the dominant organizational culture is recognized as market-based, which would be compatible with the entrepreneurial university concept (Dvorski et al., 2020). This type of culture is based on competition, favoring the leaders, oriented toward producing and competing, supporting the behaviors, gaining market share, achieving profitability, and focusing on customers (Cameron and Quinn, 2011, 53).

Table 2: Assessment of the dominant HEI organizational culture type

Dominant organizational culture	Frequency	Percent	Valid Percent
Clan culture	34	31.5	38.2
Adhocracy culture	20	18.5	22.5
Market culture	14	13.0	15.7
Hierarchical culture	21	19.4	23.6
Total valid	89	82.4	100.0
Missing	19	17.6	
Total	108	100.0	

Source: Authors

5.3. Relationship between HEI social orientation and dominant organizational culture

A potential relationship between the HEI social orientation and the dominant organizational culture can be established, by using the statistical analysis of variance (ANOVA), which tests for the significant differences of means, across several groups (Arnerić and Protrka, 2019). Firstly, means and standard deviations of HEI social orientations are presented, across the groups, defined by their perception of the dominant organizational culture (see Table 3).

Table 3: Social orientation descriptive statistics for groups, defined by organizational culture

	N	Mean	Std. Deviation	Std. Error
Clan culture	34	5.0686	1.88879	.32393
Adhocracy culture	20	6.0167	1.94508	.43493
Market culture	14	5.4524	1.37503	.36749
Hierarchical culture	21	4.4127	1.90585	.41589
Total	89	5.1873	1.89094	.20044

Source: Authors

Test of the homogeneity of variances (Levene's test) determines if the statistical assumption of the dependent variable's variance being equal over the observed groups holds. Since the results of Levene's test (see Table 4) that it is non-significant ($p < 0.05$), it is possible to interpret the ANOVA table and the F-test results (see Table 5).

Table 4: Levene's test of homogeneity of variances

		Levene Statistic	df1	df2	Sig.
HEI Social Orientation	Based on Mean	.684	3	85	.564
	Based on Median	.597	3	85	.619
	Based on Median and with adjusted df	.597	3	81.122	.619
	Based on trimmed mean	.693	3	85	.559

Source: Authors

Analysis of the variance shows significant differences among the groups ($p < 0.05$), demonstrating *a statistically significant relationship between the student perceptions of HEI social orientation and its organizational culture*. Figure 2 shows the mean values of the HEI social orientation constructs defined by organizational culture across the groups.

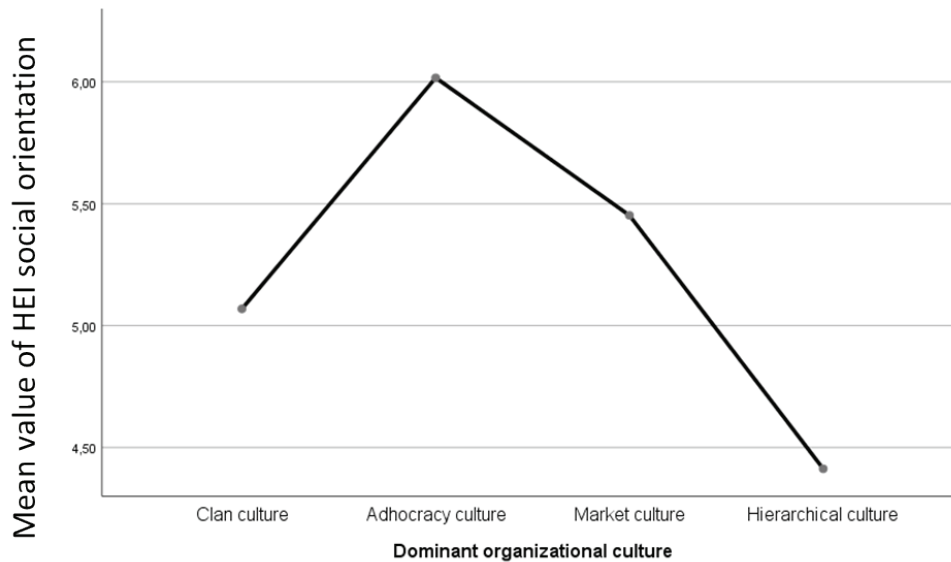
Table 5: Analysis of variance

HEI Social Orientation	Sum of Squares	df	Mean Square	F	Sig.
Between groups	27,820	3	9,273	2.748	.048
Within groups	286,837	85	3,375		
Total	314,657	88			

Source: Authors

Adhocracy, the dominant type of HEI organizational culture, is associated with the highest level of social orientation, followed by market, clan, and hierarchical culture archetypes. Since these initial research results are based on a small sample from only two higher education institutions in Croatia, further research is needed to reach general conclusions.

Figure 2: Mean values of HEI social orientation across groups, defined by the dominant culture



Source: Authors

6. Discussion, research limitations, and future research

This study is limited in a few ways since it was developed as a preliminary analysis of variation of the social orientation variable over different dominant types of university culture. Further research should address all components and relationships specified in the research model (see Figure 1). Empirical research on this model should be conducted in multiple academic settings and countries, including internal and external university stakeholders and their perspectives.

Regardless of the research limitations, it is interesting that adhocracy is associated with the highest level of HEI social orientation, followed by market-oriented HEI culture. Collaboration and people orientation (in the case of perceived clan culture), as well as market orientation, are more aligned with the HEI 'third mission'/social sustainability imperatives than the clan (people-oriented-) and hierarchy- (bureaucracy-) oriented cultures.

Since this research is limited to the preliminary analysis of social orientation variability over dominant types of different university (organizational) cultures, this discussion is not about the social orientation values in different organizational settings and cultures. It matters that *social orientation does vary in different cultures, which provides a solid argument for further empirical research on the proposed topic.*

Results of this study are supported by a variety of previous empirical results, starting with a very general notion of the university culture as a guiding framework for the management of universities (HEIs), which has been previously studied by Sporn (1996).

Entrepreneurial culture has been previously linked to knowledge production in universities, as a part of the UTM (Zawdie, 2010), with the organizational culture being listed as a factor, limiting the scope and implementation of the UTM (Koryakina et al., 2015). In this context, it would be interesting to explore further the role of university (HEI) culture in all three aspects of the university mission and functioning (teaching, research, and the UTM) and how they are linked to the university's (HEI) social orientation.

When considering similar or related concepts, such as market orientation, in the corporate sector, McClure (2010) found an empirically significant relationship between organizational culture and market orientation, mediated by the level of organizational conflict. In another profit sector study, Homburg and Pflesser (2018) have shown that organizational culture leads to market performance, which can be further linked to corporate financial performance. In the context of higher education, which has been examined in public universities, it could be argued that similar additional research should be performed in the future. It might link organizational culture to the university's (HEIs) social orientation, using the cooperation (or conflict) levels with the internal and external stakeholders as a mediating or moderating variable.

In their review of stakeholder management research in universities (HEIs), Alves, Mainardes, and Raposo (2010) mention university culture as a factor, potentially limiting its stakeholder management practice. Beyond this single study, the authors found no additional studies linking university culture to the analysis and orientation toward stakeholders in higher education.

7. Conclusion

The empirical analysis leads to the conclusion that a statistically significant variance exists *in the university social orientation construct across different dominant types of (organizational) culture in universities (HEIs)*. Therefore, the proposed *research hypothesis is to be accepted, confirming the need for further research, elaboration of the proposed theoretical model, and empirical verification*.

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A scientific paper

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SOCIODEMOGRAPHIC FACTORS OF USING SHARING ECONOMY IN TRANSPORT

ABSTRACT

The sharing economy, as a concept, model or philosophy, has been around for centuries. People who knew each other borrowed or exchanged things they did not own, which they still do today, but in a completely different economic and social environment. Although the sharing economy has been developed in several areas today (accommodation, transport, household chores, professional services, collaborative financing), this paper will analyze the transport sector.

The sharing economy allows people to satisfy their needs cheaper and faster, earn in a simpler way and connect more easily. Relevant studies show there is a certain set of user characteristics and service providers in the sharing economy, including transport services. In this research, the goal is to determine the sociodemographic characteristics of sharing economy users in transport in Croatia and to conclude whether these characteristics differ from users of the same/similar platforms in other countries. The following sociodemographic characteristics are considered in this research: gender, age, level of education, work status and city of residence. Chi-square test and Mann-Whitney U test are used to determine the relationship between sociodemographic characteristics and a) frequency of platform use, or b) the most frequently used platform, depending on whether the observed variable is qualitative or measured on an ordinal scale. The survey was conducted on 482 respondents, and the results show that the platforms are used more by women, younger, more educated, employed and self-employed people. Also, these services are used more in larger cities. These results are similar to the results of other studies in different countries and it can be concluded that users of digital platforms in transport have the same characteristics. The results also show that gender and place of residence are important for the choice of intermediary platform, while age is important for the frequency of the chosen platform usage.

Key words: *sharing economy, transport sector, sociodemographic characteristics, Croatia.*

1. Introduction

The expansive growth of the sharing economy, with its impact on various aspects of today's socioeconomic system, has induced increasing public interest in recent years. New players have entered the market in many fields that have gained significant importance, and some have even overtaken existing players. The rapid growth of the sharing economy is strongly linked to socioeconomic conditions to achieve a better distribution of supply chain value (Gansky, 2010)

and changing user attitudes towards ownership of goods and needs for social connection (Botsman and Rogers, 2010). The sharing economy is significantly impacting the social service industry across various sectors, including accommodation, transportation, education services, living services and tourism. The tourism industry has been greatly affected by the COVID-19 pandemic, primarily due to travel restrictions imposed by governments and a substantial drop in demand from travelers (Hall et al., 2020; Kuhzady & Béal, 2022). However, there is a visible shift in the recovery from the pandemic. The recovery of the sharing economy has important implications for the future of the travel and tourism industry, two main sectors of sharing economy. As the sharing economy continues to expand and adapt to market needs, it is likely to become a dominant force in shaping the social service industry's landscape (Zhu & Liu, 2021). According to Dabbous and Tarhini (2021), the sharing economy has the potential to promote sustainable economic development and energy efficiency, indicating that it is a significant socio-economic trend. Geissinger et al. (2019) argue that there is an ongoing conflict and tension between market and non-market logics within the field of sharing economy. Nevertheless, the endurance of sharing economy has been established, proving that it is not merely a passing fad and is expected to persist in the foreseeable future.

The sharing economy in transport has experienced a noticeable boom, as the transport sector is one of the largest sectors of the sharing economy by revenue (Vaughan et al., 2016). The connection of passengers takes place through digital platforms, with the possibility of traveling longer or shorter distances. The sharing economy literature abounds with articles on its impact on the market, its positive and negative sides, the motivation of users and service providers, and numerous other topics (Möhlmann, 2015; Tussyadiah, 2016; Hofmann et al., 2017; Nie, 2017; Prieto et al., 2017; Priporas et al., 2017; Visser et al., 2017; Huarng i Yu, 2018; Zhang et al., 2018; Standing et al., 2019; Zhou et al., 2019). However, to create an overall picture, it is essential to look at the determinants that led to the phenomenon of the sharing economy. Sharing through online networks, increasing communication and connecting people online have created favorable conditions for the sharing economy as people become more familiar with these concepts. The development of Web 2.0 has led to an increase in user-generated content (Kaplan & Haenlein, 2010). Social media supports social commerce interaction, in which online recommendations can persuade individuals to purchase a product (Li, 2019). Mobile technologies are a significant enabler of information shared over the network. The growth of the phone market has resulted in a diverse market of smartphone apps that perform a specific task, such as providing a ride. Therefore, the advancement of technology and social media in the 21st century is a fundamental prerequisite that has contributed to the sharing economy's development. Today, people can access different channels and forms of sharing, all through mobile phones and high-speed internet. Sharing is not a new phenomenon. People have long gathered in communities to share resources, help each other and achieve a particular interest with joint efforts because it was easier for them than acting individually. Digitalization and technological progress have encouraged faster development and expansion of sharing opportunities. The turning point for the development of the sharing economy was the world financial crisis that caused the economic collapse in 2008, after which the classical ideas about capitalism fell apart. Fueled by rising unemployment and over-indebtedness, there has been a collective awakening of the people and a global distrust of modern consumer capitalism that imposes ownership. Therefore, the solution was to share underutilized assets, which led to considerable user savings and increased asset utilization. It created all the prerequisites for the accelerated acceptance and expansion of the sharing economy.

2. Theoretical background

2.1. Literature review of sharing economy in transport

The sharing economy has revolutionized various industries with the help of technology, especially in the transport and accommodation sectors. In this paper, the emphasis will be on transport. Shared transportation platforms combine the flexibility and speed of passenger cars with a lower cost of transport at the expense of travel comfort (Furuhata et al., 2013). With shared transportation platforms, passengers use one vehicle together while traveling to the exact location. Car-sharing platforms represent a system of locally available cars ready for unlimited use at any time (Frenken, 2017). According to Feng et al. (2017), on-demand transportation platforms enable direct connections between passengers and drivers through mobile applications to provide transport services. Shared transportation platforms are a type of transport in which individual passengers share one vehicle during the journey to a familiar location and simultaneously share all the trip costs. Passengers often make arrangements on their initiative and are forced to coordinate their schedules with each other, which to the greatest extent, hinders the development and growth of the popularity of the services. Ridesharing enables sharing car travel costs, such as fuel or tolls. It also reduces congestion and emissions by making better use of vehicle capacity. Therefore, it is helpful for users, service providers and society. Although such a concept has existed for decades, the ubiquity of digital and mobile technology and the habit of users to online markets have resulted in his remarkable growth in recent years. With the development of new communication technologies and the easier integration of existing ones (GPS systems), new platforms try to provide a new type of co-transportation services in a dynamic way and in real time. Dynamic carpooling illustrates a system where users are automatically connected quickly or during transportation (Furuhata et al., 2013).

Today, dedicated platforms allow drivers to post their rides. Such information systems have helped alleviate many problems that previously limited ride-sharing. Trust among strangers is established by rating and review, user profiles and verification, and automated booking and payment processes (Gefen and Straub, 2004; Kim et al., 2010; Teubner et al., 2017). Online platforms have also dramatically reduced transaction costs for driving searches (Beul-Leusmann et al., 2014). However, despite its apparent advantages (cost reduction, environmental impact), ride-sharing remains a transportation option with a limited choice of routes (mainly connecting major cities) and less frequent schedules (only a few rides per route per day). Examples of shared transportation platforms are RelayRides, Carpooling.com and BlaBlaCar.

According to business models, the companies mentioned above can categorize into two basic models: Business-to-Consumer (B2C) car-sharing and Peer-to-Peer (P2P) car-sharing (Cohen and Kietzmann, 2014). With Business-to-Consumer (B2C) platforms, companies buy vehicles that they distribute to critical locations in the city. They are selected according to the assessment of easy access and use of the service. Users locate the nearest available car through a mobile application and use it through a membership card (Cohen and Kietzmann, 2014). Transportation platforms on request are the most popular sharing economy platforms in transportation. To be able to participate in these services, drivers must own their car, but they have the freedom to choose to what extent and when they will provide the transportation service. Likewise, drivers take the risk of transporting passengers and all vehicle maintenance costs (Riggs, 2018). Participating in on-demand transportation platforms for drivers has certain advantages and disadvantages. Basic earnings are similar to classic taxi services, with a fixed minimum

transport price and a variable price based on time spent and the number of kilometers. But revenues are also affected by factors such as dynamic pricing according to supply and demand, the possibility of co-carrying several passengers on the same route, and the reward program. Rewards programs refer to smaller platform commissions or direct cash payments to drivers who drive more hours than average. Drivers have the costs of car maintenance and cleaning, fuel, technical inspections and insurance (Zoepl et al., 2018).

2.2. The role of sociodemographic factors

Many factors determine consumer behavior in the purchase decision process, but this paper aims to investigate sociodemographic drivers of using platforms in sharing economy. Given the unique traits and market dynamics of the sharing economy, it is imperative to explore the factors that drive users' adoption of these services. By doing so, service providers can tailor their offerings to meet the specific needs of their users, while also identifying opportunities to expand their market reach. This approach ensures that both parties benefit: users receive services that align with their expectations, while providers achieve improved financial performance. Therefore, a thorough investigation of the determinants of sharing economy service usage is essential for the continued growth and success of this service. Sociodemographic factors are groups of characteristics that determine people. They represent a combination of social and demographic characteristics such as gender, age or educational level. Gender is the most frequently explored sociodemographic factor in studies, especially regarding advertising and target marketing. A study by Mitchell and Walsh (2004) shows that women and men differ in terms of the products they buy, how they react to the promotion, time of information processing during shopping, consumption, and time they spend inside the store. Traditionally, women spend more time buying products or services. In the field of sharing economy, studies show that women are more interested in participation. Some studies conclude that the typical user of sharing economy platforms in transport is a woman. It can be explained by the fact that women are more willing to share and generally are more socially responsible.

Age is the second most frequently researched sociodemographic determinant. The results of previous research show that older age groups are usually less inclined to accept innovative platforms and new technologies (Shao et al., 2020). Young people participate more frequently in the sharing economy since they easily accept and use new technologies. According to Kooti et al. (2017), Uber users are usually between 18 and 27. Among other sociodemographic characteristics, income and education levels are also investigated. The results show that sharing economy services are mainly used by more educated people with higher incomes. People with lower income and less education are involved more as providers (Vaughan et al., 2016; ING, 2015; Deloitte, 2015). Lower - educated persons provide some sharing services, but consumption levels rise rapidly with rising educational attainment. As it can be noticed, part of the research showed that the sociodemographic characteristics have a certain influence on using or providing sharing service. Therefore, the sociodemographic characteristics of users in the sharing economy will be observed in order to determine whether users differ with regard to the observed characteristics or whether there is a certain pattern of characteristics of users of sharing economy services. The following sociodemographic characteristics were taken in this research: gender, age, level of education, work status and city of residence.

3. Research design

This research aims to investigate sociodemographic determinants of users in sharing economy in the transport field. The study is conducted using a questionnaire in Croatia. The focus was on service users in the area of the four largest Croatian cities: Osijek, Rijeka, Split and Zagreb. The questionnaire was conducted online and lasted for three months, from October 2021 until January 2022. The sample consisted of users of the most recognizable applications operating in Croatia, namely BlaBlaCar, Bolt and Uber. The final sample consisted of 482 respondents and it is formed randomly.

The questionnaire was designed to align with the existing literature and adapted to suit the empirical research context. To ensure this alignment, the questionnaire items were carefully selected based on an in-depth review of the literature in a similar context. The authors then adapted and modified the chosen items to fit into the research context. In the first part of the questionnaire, respondents had to answer sociodemographic questions related to gender, age, level of education, work status and city of residence. In the second part, they responded to questions about which transport platform they used at least once and which they used most often. Likewise, they are asked how often they use sharing economy services for transport. This research is a part of a more extensive study that is made for a doctoral dissertation. Survey data analysis is made using statistical tests, depending on the variable type. The Chi-square test is used to analyze qualitative characteristics, while the Mann-Whitney U test is used for variables measured by an ordinal scale.

4. Results

4.1. Sociodemographic characteristics of the sharing economy users

In this part of the paper, an overview of the basic characteristics of respondents who use the sharing service in transport will be given. As can be seen in Table 1, the first characteristic is gender. In the research, a higher percentage of women participated (59.8%) than men (40.2%). More precisely, 288 women and 194 men participated in the research. Also, Table 1 shows the structure of respondents by age, and it is evident that the most significant number of respondents belongs to younger age groups. Most respondents are under the age of 25 (47.9%), followed by respondents who are 26 and 35 years old (34.6%) and respondents between 36 and 45 years old (15.6 %). This is followed by respondents between 46 and 55 years old (1.4 %), 56 and 65 years old (0.5 %), and not even a single respondent over 65 years old. This is the typical structure of respondents by age, given that earlier studies have shown that older age groups are less prone to accept innovative sharing economy platforms and new technologies. Furthermore, the majority of respondents completed undergraduate studies (41.9%), followed almost equally by respondents with completed high school (25.3%) and graduate studies (26.8%). A small number of respondents refers to those with completed postgraduate studies (5.2%) and the smallest share belongs to respondents with completed primary school. Also, the presented table shows the work status of the respondents from the sample. It can be noticed that the largest percentage of respondents refers to employed people (44%), and the smallest number of respondents belongs to the other group, including housewives and pensioners (2.7%). Unemployed persons (24.5%) and students (28.8%) participated equally. Regarding the place of residence, the first place takes share of respondents from Split (38%), while in second place are respondents from Zagreb (37.6%). Respondents from Osijek (11.2%) are in third place, and in fourth place are respondents residing in Rijeka (10.4 %). The smallest number of respondents live in the other

cities (2.9%), whereby the towns of Dubrovnik, Karlovac, Pula, Zadar and Šibenik are mentioned.

Table 1: Sociodemographic profiles of respondents

Variables	Frequency	
Percent		
Gender		
Male	194	40,2
Female	288	59,8
<i>Total</i>	482	
<i>100,0</i>		
Age		
18 - 25	231	
47,9		
26 - 35	167	
34,6		
36 - 45	75	
15,6		
46 - 55	7	
1,4		
56 - 65	2	
0,5		
66 and above	0	0
<i>Total</i>	482	100,0
Education level		
Elementary school	4	0,8
High school	122	
25,3		
Bachelors	202	
41,9		
Masters	129	
26,8		
PhD	25	
5,2		
<i>Total</i>	482	
<i>100,0</i>		
Work status		
Employed/self-employed	212	
44,0		
Unemployed	118	
24,5		
Student	139	
28,8		
Others	13	
2,7		
(for example housewives, pensioners)		
<i>Total</i>	482	100,0
City of residence		
Zagreb	181	37,6
Split	183	38,0
Rijeka	50	10,4
Osijek	54	11,2
Other cities	14	2,9
<i>Total</i>	482	
<i>100,0</i>		

Source: Authors

4.2. The relationship between sociodemographic characteristics of respondents and the use of sharing economy platforms

The key part of this work is to determine the connection between the respondents' sociodemographic characteristics and the use of sharing economy platforms. Each of the aforementioned sociodemographic determinants will be linked to the frequency of platform use, and the most frequently used platform. Furthermore, the connection between sociodemographic determinants and sharing economy platforms usage will be presented. Every variable will be observed with the frequency of usage and most used platform. Before every analysis, crosstabulation between 2 observed variables will be given. The first observed variable is gender. Table 2 shows a relationship between gender and the frequency of using platforms. Respondents mostly use sharing economy services once a week (232 respondents), of which 107 are male and 125 are female respondents. The least number of respondents use these services several times a year (23 male and 33 female), which means that respondents use these services frequently. In order to determine whether there is a relationship between gender and the frequency of using transport platforms, a Chi-square test was performed and the results are demonstrated in Table 3. The value of the coefficient is 0.002, which clearly shows there is a statistically significant difference between these variables, i.e. that women use transport platforms in the sharing economy more often than men.

Table 2: Relationship between gender and the frequency of using platforms

		FREQUENCY OF TRANSPORTATION PLATFORMS' USAGE				Total
		Every day	Once a week	Once a month	Several times a year	
GENDER	M	25	107	39	23	194
	F	78	125	52	33	288
Total		103	232	91	56	482

Source: Authors

Table 3: Results of Chi-square analysis for gender and the frequency of using platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14,532 ^a	3	,002
Likelihood Ratio	15,231	3	,002
Linear-by-Linear Association	4,075	1	,044
N of Valid Cases	482		

Source: Authors

Table 4 presents crosstabulation for gender and the most frequently used platforms. As it is stated before, the sample consisted of users of the most recognizable applications currently operating in Croatia, namely BlaBlaCar, Bolt and Uber. Largest respondents stated they use Bolt platform for transport, of which 36% are men and 64% women. Second platform that is most frequently used is Uber, where 35% men and 65% women use it. The least used platform is BlaBlaCar (83% men, 17% women). Table 5 shows the results of Chi-square test in order to examine the correlation between gender and the most frequently used platform. The empirical significance is 0.000, thus the results of Chi-square test indicate that there is a correlation

between gender and the most frequently used platform. Therefore, the conclusion is that women significantly use the most commonly used platforms (Bolt and Uber) more than men.

Table 4: Relationship between gender and most frequently used platforms

		MOST FREQUENTLY USED PLATFORM			Total
		Uber	Bolt	BlaBlaCar	
GENDER	M	72	84	38	194
	F	132	148	8	288
Total		204	232	46	482

Source: Authors

Table 5: Results of Chi-square analysis for gender and most frequently used platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22,783 ^a	2	,000
Likelihood Ratio	23,018	2	,000
Linear-by-Linear Association	8,718	1	,003
N of Valid Cases	482		

Source: Authors

The next variable that has been linked to the frequency of using platforms is age. In this questionnaire, variable age is grouped in six categories: age group between 18 and 25 years, 26 and 35, 36 and 45, 46 and 55, 56 and 65, and finally 66 and above. Table 6 presents the crosstabulation between age and frequency of using platforms. The results show that 91% of respondents between the ages of 18 and 35 use platforms frequently. Only 7 respondents above 45 years stated they only use platforms several times a year, which means they don't use them frequently. Frequent usage is considered using platforms every day or at least once a week. Also it was studied whether there is a connection between age and the frequency of using platforms, for which Mann-W was used. test. The results of the test can be seen in Table 7. Given that the calculated significance test is 0.000, it is concluded that there is a statistically significant difference in the ranks of the age of the respondents between those who often use and those who do not often use sharing economy services. Younger groups of respondents (from 18 to 25 and from 26 to 35) are significantly more frequent users of this service than older groups of respondents.

Table 6: Relationship between age and the frequency of using platforms

		FREQUENCY OF TRANSPORTATION PLATFORMS' USAGE				Total
		Every day	Once a week	Once a month	Once a year	
AGE	18-25	59	120	48	4	231
	26-35	35	91	34	7	167
	36-45	9	21	9	36	75
	46-55	0	0	0	7	7
	56-65	0	0	0	2	2
	66 and above	0	0	0	0	0
Total		103	232	91	56	482

Source: Authors

Table 7: Results of Mann-Whitney U test for age and the frequency of using platforms

	AGE
Mann-Whitney U	484,000
Wilcoxon W	5840,000
Z	-9,044
Asymp. Sig. (2-tailed)	,000

Source: Authors

The relationship between age and the most frequently used platforms is presented in Table 8. Respondents between 18 and 25 mostly use Bolt (49%), while respondents between 26 and 35 use Uber and Bolt almost equally. Respondents between 36 and 45 years use Uber slightly more than Bolt. BlaBlaCar is the least used platform and it is the most used by respondents between 18 and 25 years (49%). Results of Mann-Whitney U test presented in Table 9 do not show a significant correlation between age and most frequently used platforms. Empirical significance is 0,940 which is greater than 5%. Mann-Whitney U test is used because variable age is measured on an ordinal scale.

Table 8: Relationship between age and most frequently used platforms

		MOST FREQUENTLY USED PLATFORM			Total
		Uber	Bolt	BlaBlaCar	
AGE	18-25	96	113	22	231
	26-35	74	77	16	167
	36-45	29	39	7	75
	46-55	4	2	1	7
	56-65	1	1	0	2
	66 and above	0	0	0	0
Total		204	232	46	482

Source: Authors

Table 9: Results of Mann-Whitney U test for age and most frequently used platforms

	AGE
Mann-Whitney U	23572,500
Wilcoxon W	50600,500
Z	-,076
Asymp. Sig. (2-tailed)	,940

Source: Authors

Table 10 shows a relationship between education level and the frequency of using platforms. This study divides education level into five categories: elementary school, high school, bachelor, master and PhD. Most respondents use these platforms once a week, and almost half of them are bachelors (47%). Respondents with finished high school and master's degrees also frequently use these platforms, while those with finished elementary school use them at least (0,83%).

Table 11 shows the results of testing the connection between education level and the frequency of using platforms. The empirical significance is 0.001 meaning there is a statistically significant dependence between education level and the use of sharing economy services with a significance test of 5%. The result is logical, because elementary school students are too young for more extensive use of platforms, and doctoral students probably use personal cars more due to juggling between work, family and study obligations.

Table 10: Relationship between education level and the frequency of using platforms

		FREQUENCY OF TRANSPORTATION PLATFORMS' USAGE				Total
		Every day	Once a week	Once a month	Several times a year	
EDUCATION LEVEL	Elementary school	0	3	1	0	4
	High school	26	50	19	27	122
	Bachelors	41	109	44	8	202
	Masters	29	61	20	19	129
	PhD	7	9	7	2	25
Total		103	232	91	56	482

Source: Authors

Table 11: Results of Chi-square analysis for education level and the frequency of using platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32,846 ^a	12	,001
Likelihood Ratio	35,036	12	,000
Linear-by-Linear Association	1,643	1	,200
N of Valid Cases	482		

Source: Authors

Furthermore, Table 12 shows crosstabulation between education level and the most frequently used platform. The largest group of respondents are bachelors who use Bolt platform, followed by bachelors who use Uber platform. Almost the same number of respondents are users of Uber and Bolt with finished high school and master's degree. The smallest group are respondents who finished elementary school, where only 2 respondents use Uber, and just 1 Bolt and BlaBlaCar. Table 13 shows the results of Chi-square analysis for education level and most frequently used platforms. Since the significance level is 0,835 it can be concluded that education level is not a significant determinant in deciding which platform will be used.

Table 12: Relationship between education level and most frequently used platforms

		MOST FREQUENTLY USED PLATFORM			Total
		Uber	Bolt	BlaBlaCar	
EDUCATION LEVEL	Elementary school	2	1	1	4
	High school	52	57	13	122
	Bachelors	86	100	16	202
	Masters	51	65	13	129
	PhD	13	9	3	25
Total		204	232	46	482

Source: Authors

Table 13: Results of Chi-square analysis for education level and most frequently used platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4,240 ^a	8	,835
Likelihood Ratio	4,076	8	,850
Linear-by-Linear Association	,006	1	,939
N of Valid Cases	482		

Source: Authors

The next observed variable is work status. This research proposes four classes of work status: employed/self-employed, unemployed, student and others (housewives, pensioners...). It can be noticed in Table 14 that largest number of respondents are employed or self-employed who use these services once a week. Also the same number of unemployed and students use them once a week. The smallest group is category "others", where only 13 respondents use these platforms several times a year. Table 15 shows the results of Chi-square analysis for work status and the frequency of using platforms. Pearson Chi-square is 0,000 and indicates a correlation between work status and frequency of using platforms. It is shown that the respondents most often use the platforms once a week, from all observed categories of work status.

Table 14: Relationship between work status and the frequency of using platforms

		FREQUENCY OF TRANSPORTATION PLATFORMS' USAGE				Total
		Every day	Once a week	Once a month	Several times a year	
WORK STATUS	Employed/self-employed	42	92	39	39	212
	Unemployed	22	70	23	3	118
	Student	39	70	29	1	139
	Others (housewives, pensioners...)	0	0	0	13	13
Total		103	232	91	56	482

Source: Authors

Table 15: Results of Chi-square analysis for work status and the frequency of using platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	137,954 ^a	9	,000
Likelihood Ratio	107,783	9	,000
Linear-by-Linear Association	1,372	1	,241
N of Valid Cases	482		

Source: Authors

According to Table 16, almost the same number of employed/self-employed persons use Uber and Bolt. Likewise, unemployed respondents also use Uber and Bolt the same, while students use Bolt more than Uber. BlaBlaCar is the least used platform; employed/self-employed persons use it almost 50%. Table 17 shows the results of Chi-square analysis and it is demonstrated that there is no significant correlation between work status and most frequently used platforms, since the result of the test is 0,394.

Table 16: Relationship between work status and most frequently used platforms

		MOST FREQUENTLY USED PLATFORM			Total
		UBER	BOLT	BlaBlaCar	
WORK STATUS	Employed/self-employed	93	97	22	212
	Unemployed	51	54	13	118
	Student	57	71	11	139
	Others (housewives, pensioners...)	3	10	0	13
Total		204	232	46	482

Source: Authors

Table 17: Results of Chi-square analysis for work status and most frequently used platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6,263 ^a	6	,394
Likelihood Ratio	7,391	6	,286
Linear-by-Linear Association	,079	1	,779
N of Valid Cases	482		

Source: Authors

The last observed variable is city of residence. Table 18 demonstrates crosstabulation between city of residence and the frequency of using platforms. Most of the respondents are from 2 cities: Zagreb and Split. Largest number belongs to respondents from Zagreb who use these services once a week (97 respondents). Followed by Split respondents, who also use them once a week (87 respondents). The smallest group are respondents from other cities (Dubrovnik, Karlovac, Pula, Zadar and Šibenik). Table 19 shows Chi-square analysis and it can be concluded that city of residence is significantly correlated with frequency of using platforms (Pearson Chi-square is 0.000). So, in larger cities there are more users who use the platforms once a week, once a month, or once a year, despite the data that in Split a larger number of users use the platforms every day compared to Zagreb.

Table 18: Relationship between city of residence and the frequency of using platforms

		FREQUENCY OF TRANSPORTATION PLATFORMS' USAGE				Total
		Every day	Once a week	Once a month	Once a year	
City of residence	Zagreb	18	97	40	26	181
	Split	59	87	25	12	183
	Rijeka	9	19	12	10	50
	Osijek	14	24	11	5	54
	Other cities	3	5	3	3	14
Total		103	232	91	56	482

Source: Authors

Table 19: Results of Chi-square analysis for city of residence and the frequency of using platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38,858 ^a	12	,000
Likelihood Ratio	40,411	12	,000
Linear-by-Linear Association	1,114	1	,291
N of Valid Cases	482		

Source: Authors

The final crosstabulation in Table 20 refers to a relationship between the city of residence and most frequently used platforms. Its interesting to notice that most respondents from Zagreb use Uber, while respondents from Split use Bolt the most. Respondents from Rijeka and Osijek use Uber and Bolt almost the same. Table 21 demonstrates the results of Chi-square test. Significance is 0,000, meaning there is a statistically significant relation between city of residence and most frequently used platforms.

Table 20: Relationship between city of residence and most frequently used platforms

		MOST FREQUENTLY USED PLATFORM			Total
		Uber	Bolt	BlaBlaCar	
City of residence	Zagreb	99	63	19	181
	Split	50	117	16	183
	Rijeka	23	21	6	50
	Osijek	28	21	5	54
	Other cities	4	10	0	14
Total		204	232	46	482

Source: Authors

Table 21: Results of Chi-square analysis for city of residence and most frequently used platforms

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	39,272 ^a	8	,000
Likelihood Ratio	41,135	8	,000
Linear-by-Linear Association	,535	1	,465
N of Valid Cases	482		

Source: Authors

5. Conclusions

This research provides an understanding of sociodemographic factors' role in using sharing economy platforms in transport. The study is conducted in Croatia and the respondents are users of sharing economy services in transport: Uber, Bolt and BlaBlaCar. Based on the survey data from 482 respondents, the analysis shows that gender, age, education level, work status and city of residence significantly determine the frequency of platform use. Frequent use is considered using platforms at least once a week. This research confirmed that platforms are used more by women, as it is stated in previous studies. Also, it is shown that younger people are more interested in using platform services. It can be explained by the fact that younger individuals are more receptive to innovative sharing economy platforms and new technologies in general. This is consistent with earlier research indicating that older age groups are typically less willing to embrace novel platforms and technologies (Shao et al., 2020). Education level is correlated with the use of these services, because high educated people tend use these services more. This finding is also consistent with previous studies, indicating that individuals with lower income and educational levels are more inclined to engage in the sharing economy as providers rather than users (Vaughan et al., 2016). This movement of respondents according to degree education is expected considering also the age of the respondents who participated in the research.

As for the work status, it is demonstrated how employed and self-employed people mostly use these platforms. City of residence is important determinant primarily because these services are most developed in bigger cities. These findings are essential for service providers to determine which segment they should focus on, which areas they can improve, or how to attract more users. As for the specific platform, analysis show that gender and city of residence are important determinants in decision which platform of sharing economy in transport will be used. It can be explained by the fact that BlaBlaCar is a transport option with less available routs, mainly connecting bigger cities. Unlike Bolt and Uber, BlaBlaCar connects people for long-distance travel, most often between cities. The movements of Bolt and Uber vehicles can be easily tracked via the app, and they are often perceived as more reliable than BlaBlaCars. Therefore, women are less prone to use BlaBla compared to Bolt and Uber. Also, since all services are not equally available in every city, it is expected that city of residence is related with decision which platform to use.

These findings could help service providers in order to expand user's base. For sharing economy services in transport to increase the number of users, it is necessary to bring these platforms closer to groups that do not want to accept new services, due to fear of innovation or ignorance. Providers should take in consideration all insecurities that exist for non-educated or older people. Women have insecurities regarding interacting and travel on long distance journeys with strangers. For that reason, providers should work on increasing security levels. Regarding non-educated and older people, providers should lower barriers for using these services, by providing easier and simple processes for participation. Also, they should enable user-friendly, reliable and functional application which will be easy to understand and use. For further research geographical focus should be taken in consideration. As in most others research on the sharing economy, the survey was related only to the territory of one country, in this case Croatia. This potentially limits the application of the results to other geographical areas which do not have the same transport platforms. But despite the specificity of the platforms that exist in different countries, the research in Croatia showed that the users of the platforms have similar sociodemographic characteristics.

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A scientific paper

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UNDERSTANDING USERS' INTENTION IN SHARING ECONOMY: EVIDENCE FROM CROATIA

ABSTRACT

The sharing economy is a trend that fundamentally changes the way of life and consumer habits. With its rapid development, sharing economy presents a research challenge while service quality is recognized as a key factor in the sustainable growth of this trend. Therefore, it is not surprising that service quality and customer relations have received considerable research attention. However, sharing economy studies are mostly conducted in the field of accommodation. Transport is less represented in studies, which is why this research aims to focus on that field, in order to contribute new findings, but also to compare the results with the accommodation sector.

This paper aims to explore the key factors that influence the perceived service quality and shape users' intentions toward sharing economy services in the transportation sector. The study seeks to understand why people engage in the sharing economy, what motivates customers, how the quality of service can be improved, what predicts behavioral intentions, and why some still resist participating in this trend. The research was conducted through the use of questionnaire data in Croatia and regression analysis was employed to determine the effect of perceived service quality on users' intentions. Perceived service quality was examined through three dimensions: technical, economic, and social. The results indicated that all three dimensions have a positive impact on the use of sharing economy services. Understanding the determinants of service quality that influence users' intentions is critical for service providers who aim to build long-lasting relationships with their customers.

Key words: *sharing economy, service quality, users' intentions, Croatia.*

1. Introduction

The sharing economy provides solutions with on-demand transportation, thereby increasing the utilization of available vehicle capacity on roads. The algorithms utilized on sharing economy platforms are designed to optimize profits for service providers, minimize passenger travel time, and lower costs. Profit optimization is given the greatest priority, as evidenced by De Carvalho and Golpayegani (2022). However, as per Ofori et al. (2022), while economic value remains a

critical factor in determining repeat usage of ride services in the sharing economy, changing customer preferences have resulted in monetary savings not being the only consideration. Lotfi and Abdelghany (2022) have mathematically proven that increased usage of sharing economy car services would be beneficial for both users and service providers. Wang and Zhang (2022) reached a similar conclusion, although they noted that the majority of benefits for users and service providers would come at the expense of the driver. China has the highest percentage of sharing economy ride service users, with 44% of the population using such services, followed by Russia (42%). These services are mainly used by the younger, highly-educated population. In Croatia, user penetration was 2.2% in 2023 and is expected to reach 2.6% by 2027 (Statista, 2023), which is low compared to the previously mentioned countries. Statista shows a slow linear growth of the sharing economy for ride services in Croatia, with a sharp decline during the pandemic and a return to pre-pandemic levels in 2022.

Zhang et al. (2022) conducted a longitudinal study in Austin, Texas, which showed that the availability of Airbnb locations greatly depends on sharing economy car services. In Croatia, there are similarities, such as apartments not accessible by public transportation and an increase in the usage of sharing economy car services by tourists. A search for "Uber" in Google Trends for Croatia reveals seasonality effects. Ali et al. (2022) found that sharing economy car services are more widely used in developing countries where public transportation is poor or non-existent, and a survey of 531 respondents showed that users were generally satisfied with the services, except in situations where they lost an item in the car and there was no regulated way to retrieve it. There is also the issue of data collection and surveillance through riding services via platforms. Paliński (2022) conducted an experiment in Poland, concluding that there is a significant gap between those willing to provide personal data for services through platforms and those who avoid it due to privacy concerns.

In conclusion, several factors motivate users to use shared economy services for rides, such as youth, education, and a preference for sustainability. However, there have been few studies into what motivates users to continue using these services. Lim et al. (2021) suggested that service quality, platform reliability, vendor competence, responsiveness, and co-sharer empathy positively influence customer satisfaction and lead to increased customer loyalty. Thus, it is essential to investigate the quality factors that determine users' intention to reuse sharing economy services for rides, particularly in situations where switching costs are low and competition is high. This work will share light on this issue.

2. Theoretical background

In a rapidly changing environment, implementing quality management is crucial as it offers a method of differentiation and a substantial basis for acquiring a sustainable competitive advantage. The concept of quality continues to captivate scientists and researchers worldwide, and its definition has evolved over time with the progression of science and society. Currently, the impacts of globalization and liberalization are felt across all economies, and the competitive landscape necessitates organizations to concentrate not only on results, but also on the processes involved in delivering products and services.

2.1. Sharing economy and service quality

The review of previous studies highlights the classification of service quality determinants into different typologies. For many years, delivering more value to customers than competitors has

been the primary goal of businesses, with the aim of delivering value. In recent years, service quality has been broken down into several categories, such as functional, emotional, economic, and social, as divided by Sweeney and Soutar (2001), to evaluate a product's perceived value from different perspectives.

The sharing economy is distinctive in its features, which sets it apart from other service environments, such as the absence of ownership. Digital technologies have transformed the business model, making perceived value for customers even more significant in driving satisfaction and repeat use intentions.

Shao et al. (2019) studied the impact of the four-category mechanism on satisfaction and continued intention to use a system of sharing bikes. They emphasized that the mentioned business model can provide customers with a more efficient, pleasant, and affordable mode of transportation, greatly influencing perceived functional, emotional, and economic values. The bike-sharing service can also offer benefits such as reducing environmental pollution and promoting sustainability, as part of the environmental category. The study did not include the social component in the service quality, as it deals with bike-sharing systems, where the social value lies in fulfilling the need for real social interaction in a virtual environment (Zhang et al., 2016), which is more relevant in transport or accommodation services. Shao et al. (2019) found that functional and economic value, as part of the perceived value for service users, significantly influence reuse intention. Based on the literature analyzed, the determinants of service quality in this research will be categorized into three main categories: technical, economic, and social.

2.1.1. Technical category of service quality

The research on sharing economy services has shown that users give significant attention to the platform through which they access the services, as highlighted by Priporas et al. (2017). A study by Zhang et al. (2016) shows that users attach importance to various technical aspects of value. Festila and Müller (2017) define sharing economy services based on their technical aspect, as it offers users functional benefits in a flexible manner.

Huang and Yu (2018) emphasize that a well-designed platform, which makes it easy for users to access necessary information, is crucial for achieving service quality in the online environment. This is an important factor that drives repeat usage intentions in e-services, as pointed out by Chang and Chen (2008). User convenience, in the form of ease of use, booking flexibility, and quick problem resolution, is highly important to users. They look for features such as quick responses to inquiries, clear instructions from service providers, fast application response time, and customer support. Numerous research has emphasized the significance of platforms in shaping the outcome of the sharing economy. Ladhari (2010) highlights platform reliability, response time, ease of use, and application appearance as key service quality dimensions in online services. Lin (2007) evaluates the quality of a platform using variables such as response speed, trust in the platform, and user concerns. This research will evaluate the quality of the service using questions such as ease of booking, platform functionality and transactions, and trust in the platform. Priporas et al. (2017) found that convenience, in the form of ease and simplicity of information gathering and access to customer support, is the most important service quality factor. Customer support and data privacy protection were key factors determining service quality and repeat service usage. Clauss et al. (2019) confirmed the significant impact of trust on loyalty regarding the platform. Shao et al. (2019) demonstrated that response time, ease of use, security of transactions, and the attractive appearance of the platform play a critical role in determining service quality and continued use of the platform.

In conclusion, studies have shown that minimizing non-monetary expenditures, in the form of time and effort (convenience), positively impacts the service's repeat usage. In addition to technical aspects, the tangible aspects of the service, such as cleanliness and comfort, have been found to be important factors. Zhou and Zhang (2018) concluded that vehicle condition and cleanliness, as well as ease and comfort of driving, are the most crucial factors in determining service satisfaction and reuse intentions. The accommodation space's cleanliness and the stay's comfort are features that attract users and encourage them to stay longer, as noted by Zhang et al. (2019).

Previous research has emphasized the significance of both technical and tangible aspects in the context of accommodation and transport. This research will combine these aspects into a technical category and include variables that have been shown to be important according to the majority of research in this area. These variables will be divided into two categories: the application and the physical environment of service provision. The first category, the application, is seen as a major advantage of sharing economy services, as users appreciate the platform's simplicity, which enables quick and efficient resolution of their requests. For example, in the transport sector, users can order the service with a few simple steps and access information about the driver's profile and arrival time. The application also allows users to track the vehicle's movement before and during the drive and includes customer support that instills user confidence. The second category of technical aspects pertains to the physical environment of the service, focusing on the comfort of driving and the vehicle's condition. The significance of the application cannot be ignored, however, it is noteworthy that users also take into consideration the cleanliness and upkeep of the vehicle. Despite the convenience and user-friendliness of the application, poor vehicle maintenance or an unpleasant driving experience may decrease a user's chances of continuing to utilize the service.

2.1.2. Economic category of service quality

The significance of the economic factor is widely recognized, with multiple studies confirming its importance in sharing economy (Gansky, 2010; Bellotti et al., 2015). The growing popularity of the sharing economy is attributed to its ability to convert object ownership into shared ownership, which provides users with substantial economic benefits, such as cost savings (Koopman et al., 2014).

Users opt for sharing economy services because of the lower cost of accessing desired products and services, making economic considerations the main motivators for participation (Bardhi and Eckhardt, 2012). This has been confirmed through studies of Car2Go (transportation) and Airbnb (accommodation) users by Möhlmann (2015), which demonstrate that the pricing aspect of sharing economy services enhances value and the intention to reuse these services, particularly in the transportation and accommodation sectors. The sharing economy, especially Airbnb, offers lower costs for accommodation, which are highly valued by users compared to traditional accommodation services. Users often report positive experiences and a desire to participate again, citing the economic benefits as a key factor (Hamari et al., 2016). The cost of travel directly impacts user motivation and experience, and satisfaction is higher among users who book an accommodation of equal value at a lower price, leading to a greater likelihood of returning to these services (Alegre and Cladera, 2010; Tussyadiah, 2016). The ability to obtain information about the price in advance is also considered an advantage of sharing economy services, as it eliminates uncertainty about the final cost, which can lead to abandoning the service due to perceived high prices (Guttentag, 2015; So et al., 2018; Young et al., 2020). Upon

contracting, this immediate display of the cost of the service is another financial benefit that positively impacts the user experience and intention to reuse these services.

In conclusion, a significant body of literature highlights the importance of cost savings and the ability to obtain information about the price in advance as the main motivators for participation in the sharing economy.

2.1.3. Social category of service quality

The study of service quality within the sharing economy has a main emphasis on the influence of social elements. This emphasis arises from previous investigations into service quality, which were primarily conducted in the accommodation sector and found that social elements were the most important drivers of service quality. There are two main sources of social value in the sharing economy, online platforms and real-world interactions.

Online platforms serve as a medium for social exchange and interaction, encouraging users to continue using sharing economy services (Hamari et al., 2016). In real-world sharing environments, such as Airbnb accommodations, users have the opportunity to interact with service providers and other users, which is seen as valuable as humans are naturally social creatures (Zekanovic-Korona and Grzunov, 2014). The role of service providers in shaping the user experience is crucial (Ju et al., 2019). Effective communication, in particular, is vital in building trust (Cheng and Jin, 2019). Previous research in the accommodation sector (Priporas et al., 2017) has shown that service providers' understanding and care for guests, such as accommodating their needs and providing a warm welcome, plays a significant role in reuse of the service. In the transport sector, drivers and users can engage in conversation, with drivers offering useful tips and recommendations, creating a positive atmosphere. This underscores the significance of social interactions and the service provider's relationship in shaping the sharing economy user experience.

Social interactions with other users also positively impact repeat service use. Users tend to read previous reviews to gain more information, increase familiarity, and reduce perceived risk before making a decision to use the service (Xu et al., 2019). Direct interaction with other users can also form social ties, with guests potentially making friends and exploring tourist destinations together. Research suggests that users are motivated by social relationships and the desire to be part of an online or offline community (Belk, 2010; Möhlmann, 2015). Social requirements, such as the need for social interaction and a sense of community, have a considerable impact on repeat usage of services. The formation of social connections and the search for individuals with similar interests are the primary drivers behind repeat service usage (Botsman and Rogers, 2010; Möhlmann, 2015).

In addition to social interactions with service providers and other users, trendsetting is another significant social factor. Consumers who follow trends are more likely to use modern products, and the sharing economy is a new trend that significantly impacts user behavior (Botsman and Rogers, 2010). Younger age groups, especially Generation Y, are more inclined to follow trends. Thus, many social values developed within the sharing economy, such as friendships with service providers and other users, trust due to recommendations, the desire to follow trends, etc. (Zhang et al., 2018), have an impact on repeated service use. While the majority of studies on the sharing economy have been focused on the accommodation industry, it is expected that similar outcomes will be seen in the transportation sector of the sharing economy as well.

2.2. Users' intention

The study of users' behavioral intentions in sharing economy services is a prevalent research area, particularly in the accommodation sector. Studies in this field are divided into two categories, those that investigate intentions toward the service provider and those that focus on the intentions toward a specific platform, such as Airbnb. Research has predominantly focused on the platform rather than the service provider in the transport sector. This is due to the practical non-existence of loyalty to a specific provider. Previous research on behavioral intentions in the sharing economy has shown that positive emotions and experiences during use play a significant role in shaping users' intentions to reuse the platform. Users are motivated by a series of perceived values, while reduced information search costs contribute to repeat usage (Wu et al., 2014). Lalicic and Weismayer (2018) examined behavioral intentions in the sharing economy using a questionnaire with five-point Likert scale. On the other hand, Priporas et al. (2017) used a three-level scale proposed by Salanova et al. (2005) in their study of behavioral intentions. Shuqair et al. (2019) also utilized a questionnaire to examine behavioral intentions, with participants rating their intentions using four statements on a nine-point scale from DeWitt et al. (2008). The analyzed literature suggests that behavioral intentions will be measured through the user's attitude towards recommendations and repeat use in this research.

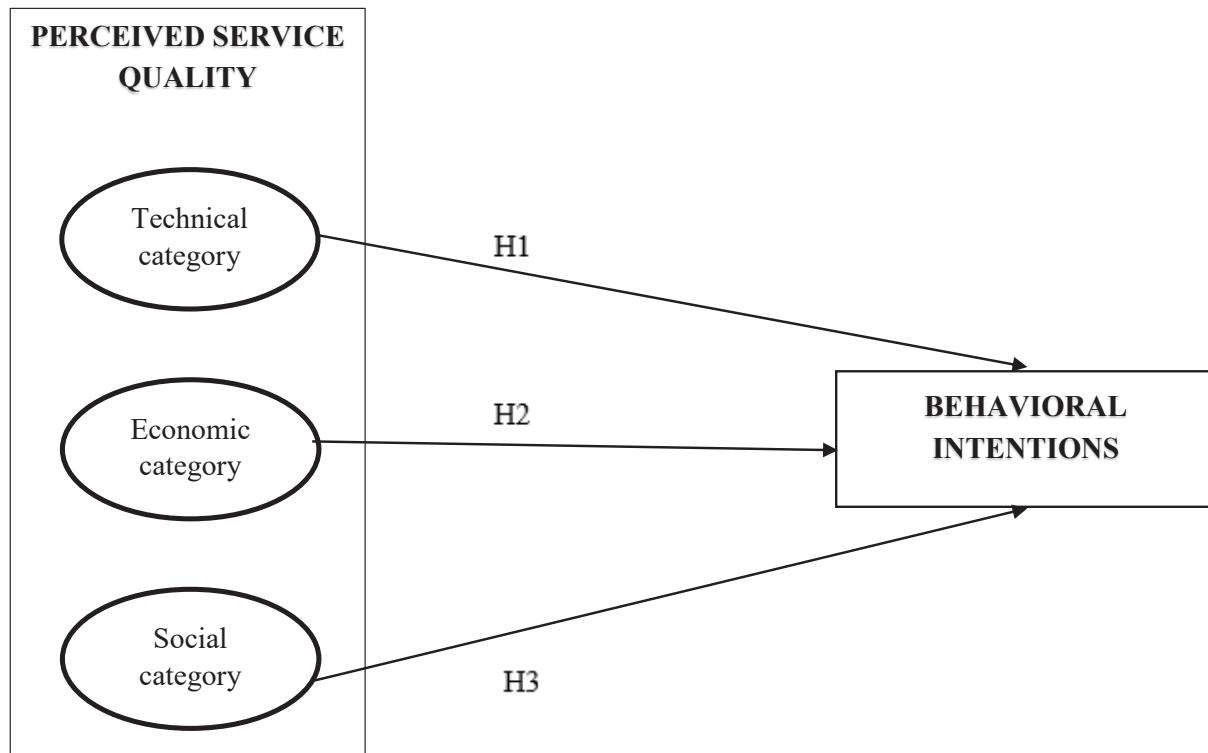
3. Research framework

3.1. Hypotheses and Model

The previous section is used to develop research hypotheses. The research model is designed to assess the effect of service quality's technical, economic, and social dimensions on users' intentions to use sharing economy services. It is suggested that:

- A higher level of technical quality will positively impact behavioral intentions to reuse sharing economy services.
- An increase in the economic quality of sharing economy services will lead to a heightened level of user intent to reuse such services.
- A rise in social quality will lead to increased levels of users' behavioral intentions to recommend sharing economy services to others.

The objective of this research is to deepen our understanding of the elements that drive user intentions in the sharing economy. By evaluating the influence of service quality on users' intentions, the study will provide valuable information for sharing economy service providers to formulate more effective marketing and customer service approaches. The hypotheses will be tested and validated as part of this effort.

Figure 1: Research model

Source: Authors

The proposed model implies that:

H1: Perceived service quality has a direct and positive influence on the users' intention in sharing economy

H1(a): The technical category directly and positively influences the users' behavioral intentions.

H1(b): The economic category directly and positively influences the users' behavioral intentions.

H1(c): The social category directly and positively influences the users' behavioral intentions.

3.2. Research instrument

The research hypotheses and study design were founded on the model discussed in the preceding chapter. To test the hypotheses, a literature review was conducted to create a questionnaire. The questionnaire underwent a two-phase development process, which included the creation of the initial questionnaire and a pilot study.

In the first stage, the initial questionnaire was constructed by examining relevant literature and adapting it to the study context. The questions were selected and modified to align with the research context, taking into account prior studies in similar domains.

The pilot study was conducted to evaluate the questionnaire's reliability and clarity. The final version of the questionnaire consisted of questions about the demographic profile of respondents, and sections that aimed to measure their perceptions. This study used a 5-point Likert scale: 1) never, 2) rarely, 3) sometimes, 4) frequently, and 5) always. All responses were given equal weight for the selected variables.

3.3. Sampling design and sample size

The geographical distribution of transport platforms was taken into account when determining the scope of the research by city. The services offered by Bolt and Uber are not available in all cities. However, the market is rapidly changing and these companies are constantly expanding and increasing their markets. BlaBlaCar operates differently from Bolt and Uber, but its use is more concentrated in larger cities. As a result, the research focused on service users in the four largest cities in Croatia: Osijek, Rijeka, Split, and Zagreb. The sample consisted of users of the most recognizable apps currently operating in Croatia, including BlaBlaCar, Bolt, and Uber, and the final sample size was 482 respondents.

3.4. Demographic profile of the respondents

In any research, including this one, it is important to understand who are the users of the sharing economy service in traffic. As earlier research has shown, sharing economy services are preferred by young, more educated people with higher incomes and women (Kooti et al., 2017; Sung et al., 2017). Whether the results of previous research differ from this, it will be seen in the presented work. Users of the sharing economy services in transport in Croatia are shown in Table 1.

Table 1: Sociodemographic profiles of respondents

Variables	Frequency	Percent
<i>Gender</i>		
Male	194	40,2
Female	288	59,8
Total	482	100,0
<i>Age</i>		
18 - 25	231	47,9
26 - 35	167	34,6
36 - 45	75	15,6
46 - 55	7	1,4
56 - 65	2	0,5
66 and above	0	0
Total	482	100,0
<i>Education level</i>		
Elementary school	4	0,8
High school	122	25,3
Bachelors	202	41,9
Masters	129	26,8
PhD	25	5,2
Total	482	100,0
<i>Work status</i>		
Employed/self-employed	212	44,0
Unemployed	118	24,5
Student	139	28,8

Variables	Frequency	Percent
Others (for example housewives, pensioners)	13	2,7
Total	482	100,0
<i>City of residence</i>		
Zagreb	181	37,6
Split	183	38,0
Rijeka	50	10,4
Osijek	54	11,2
Other cities	14	2,9
Total	482	100,0

Source: Authors

As shown in Table 1, sharing economy services in transport are used more by women (59.8%) than men (40.2%), which aligns with the findings of other studies. The respondents were predominantly young (18 - 25 and 26 - 35 years old) making up 82.5% of the respondents. It is noteworthy that there were no users of the sharing economy service above the age of 65. These results support the previously established notion that younger individuals are more inclined to embrace new forms of services, such as the sharing economy, likely due to their greater ease of adapting to new technologies. Regarding education level, most respondents had completed undergraduate and graduate studies (68.7%), while the number of those who completed high school was nearly equal to those with graduate studies (25.3%). The smallest group of respondents had only completed elementary school (0.8%). This result is consistent with previous studies that indicate that individuals with higher education levels are more likely to use sharing economy services.

Employment status may also play a role in using sharing economy transport services. The survey showed that the largest group of respondents was employed individuals (44%), followed by students (more than a quarter of users) and the unemployed (a little less than a quarter of users). The research was conducted in the four largest cities in Croatia, chosen due to the presence and distribution of transport platforms. The results showed that the transportation-sharing economy service was used most frequently by residents of Split (38%) and Zagreb (37.6%). In smaller cities, such as Osijek (11.2%) and Rijeka (10.4%), the number of users was accordingly smaller. In conclusion, the demographic characteristics of the respondents in Croatia were found to be similar to those in other countries, with regard to the usage of sharing economy services in transport.

3.5. Research validity and reliability

The average variance extracted (AVE) measures the proportion of variance in the indicators (items or questions) that is explained by the underlying construct, which is referred to as the latent variable. The idea behind AVE is that for a construct to be considered valid, its indicators should reflect the construct accurately, meaning that the indicators should be highly related to the construct and capture the underlying concept well. The AVE is calculated by dividing the average of the squared factor loadings of the indicators by the average of the variances of the indicators. The squared factor loadings represent the correlation between the indicator and the construct, while the indicators' variances represent the indicators' variability. A higher AVE value indicates that the indicators are better at measuring the construct and that the construct is more robust. A recommended AVE value is 0.5, meaning that the construct explains 50% of the variability in the indicators. In practice, AVE values between 0.5 and 0.7 are considered

acceptable. The AVE and reliability measures are crucial when evaluating the validity of a measurement tool or instrument, such as a survey questionnaire. So, the AVE measures how well an indicator, such as a questionnaire item, captures the essence of the underlying construct being measured, such as service quality.

In terms of reliability, Cronbach's alpha is a widely used measure of consistency in the values of variables. A Cronbach's alpha coefficient of 0.7 or higher is often considered the lower limit for acceptable reliability, although a more flexible limit of 0.6 may be used in exploratory research. However, the limitations of Cronbach's alpha measure have led to using the construct reliability (CR) indicator, which is considered to provide more accurate estimates.

Construct Reliability (CR) is another commonly used measure to assess the reliability or consistency of used variables. It is considered a more accurate and sophisticated measure compared to Cronbach's alpha, a simpler and more widely used measure of reliability. CR is based on the factor structure of the variables and measures the proportion of variance common to all variables within a construct. This allows for a more comprehensive evaluation of a construct's reliability, as it considers the intercorrelations among the variables as well as their measurement errors. A high CR value indicates that the variables within a construct are highly correlated and measure the same underlying construct. On the other hand, a low CR value suggests that the variables are not measuring the same construct and may not be appropriate for regression analysis. Generally, a CR value that is 0.7 and higher is considered acceptable, indicating that the variables are reliable indicators of the underlying construct.

It's important to note that both AVE and CR should be used together to assess the quality of the predictor variables in regression analysis. A high AVE value alone does not necessarily mean that the variables are good predictors, as the variables may be highly correlated but still have high measurement errors. Thus, both AVE and CR should be considered when evaluating the quality of the predictor variables in regression analysis.

Validity of measurement model constructs can be found in Table 2. These values provide information on the quality of the measurement tool and help to determine if the questionnaire items are measuring the intended construct and if they are reliable. Understanding these values is important when interpreting regression analysis results and making conclusions. As can be noticed, all values are acceptable meaning that the instrument is valid and highly reliable.

Table 2: Validity of measurement model constructs

Observed variables	Latent construct	Estimation	Cronbach α	CR	AVE
TCSQ1 TCSQ2 TCSQ3 TCSQ4 TCSQ5 TCSQ6 TCSQ7 TCSQ8 TCSQ9 TCSQ10 TCSQ11 TCSQ12 TCSQ13 TCSQ14 TCSQ15 TCSQ16	Technical category (TCSQ)	0,728 0,534 0,659 0,698 0,657 0,884 0,765 0,822 0,834 0,787 0,766 0,825 0,731 0,722 0,822 0,699	0,787	0,795	0,565
ECSQ1 ECSQ2 ECSQ3 ECSQ4 ECSQ5	Economic category (ECSQ)	0,593 0,524 0,621 0,775 0,685	0,635	0,647	0,55
CCSQ1 CCSQ2 CCSQ3 CCSQ4 CCSQ5 CCSQ6 CCSQ7 CCSQ8 CCSQ9 CCSQ10 CCSQ11 CCSQ12 CCSQ13	Social category (CCSQ)	0,858 0,712 0,621 0,797 0,670 0,625 0,955 0,723 0,831 0,676 0,685 0,770 0,833	0,65	0,78	0,513
UI1 UI2 UI3 UI4 UI5 UI6	Users' intentions (UI)	0,534 0,638 0,631 0,514 0,583 0,787	0,667	0,75	0,484

Source: Authors

3.6. Regression analysis

As previously mentioned, the variables of behavioral intentions (dependent variable) and the technical, economic, and social dimensions of service quality (independent variables) have been established as reliable through the use of a validated measuring instrument. Based on this, a regression analysis was conducted to examine the research model and hypotheses. The results of the correlation are presented in Table 3.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,750 ^a	,562	,504	,382

a. Predictors: (Constant), TCSQ, ECSQ, CCSQ

Source: Authors

Table 3 indicates that the values of R Square and Adjusted R Square, which stand at 0.562 and 0.504 respectively, surpass the 50% threshold. This demonstrates that the technical, economic, and social components of service quality, as independent variables, have a noticeable effect on the changes in the dependent variable, which is behavioral intentions. Furthermore, with a Std. Error of the Estimate of 0.382, it can be inferred that the independent variables have a noteworthy impact on the dependent variable, although there is still some residual variation that remains unaccounted for. Table 4 highlights the statistical significance of the correlation between the technical, economic, and social components of service quality and the behavioral intentions of users.

Table 4: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10,581	3	3,527	106,88	,000 ^b
	Residual	15,833	478	,033		
	Total	26,414	481			

a. Dependent Variable: UI

b. Predictors: (Constant), TCSQ, ECSQ, CCSQ

Source: Authors

The data in Table 4 show that there is a significant statistical relationship (sig. 0.000) between the independent variables (technical, economic and social components of service quality) and the dependent variable (behavioral intention). If on the other hand, the influence of each independent variable on behavioral intentions is observed, the same result is reached (Table 5).

Table 5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,346	,164		32,588	,000
	TCSQ	,111	,018	,238	6,233	,000
	ECSQ	,263	,093	,275	2,822	,006
	CCSQ	,367	,082	,401	4,461	,000

a. Dependent Variable: UI

Source: Authors

As Table 5 demonstrates, the results support all three of our hypotheses regarding the impact of perceived service quality on behavioral intentions. Specifically, the technical component (sig. 0.000), economic component (sig. 0.006), and social component (sig. 0.000) of service quality all had a statistically significant effect on behavioral intentions. These findings, in conjunction with those from Table 4, confirm Hypothesis H1.

4. Conclusions

This study aimed to examine the relationship between the perceived technical, economic and social components of service quality in the transport-sharing economy, and their influence on the users' behavioral intentions in Croatia. The research was conducted in the four largest cities in Croatia and involved surveying users of sharing economy services in transport. The results showed that the majority of respondents were young, educated, employed individuals, while the highest usage of sharing economy services was observed in Split and Zagreb. The regression analysis revealed that service quality's technical, economic and social components effectively explained changes in the dependent variable of behavioral intentions.

The regression analysis confirmed the hypothesis that service quality's perceived technical, economic and social components directly and positively influence the users' behavioral intentions. The results indicate that the technical component is the most significant predictor of users' behavioral intentions, followed by the social and economic components. This suggests that companies operating in the transport-sharing economy services should focus on improving their technical components to enhance user satisfaction and increase their likelihood of returning to the service. Additionally, the economic and social components of the service quality should also be considered and improved to ensure overall service quality. Therefore, to encourage a large number of users to utilize services and recommend them to others, it is crucial to prioritize the technical aspects of service provision. Application is the user's first contact with the service, so it is imperative to ensure a positive user experience. The application must be fast, efficient, functional, reliable and user-friendly, as this will significantly affect user attraction. It is necessary to facilitate user interaction with the interface, ensuring ease of access and visibility of the application. Additionally, it is critical to prevent data loading delays and provide adequate user data protection. Regarding the social aspect, it is essential to ensure that drivers are informed, pleasant and communicative. Such drivers enhance the user's impression of the service and encourage repeated use. These dimensions of service quality influence user behavioral intentions, so the providers interested in long-term relationships with users must prioritize them. Such a focus will benefit both the user and service provider as it can help to acknowledge the needs of users, and also be utilized to upgrade and enhance transportation services within the sharing economy. Therefore, this study provides evidence of the important role that the technical, economic, and social components of service quality play in shaping the behavior of users in the sharing economy in transport

The results of the present study must be interpreted taking into consideration the potential limitations and recommendations for future research. It should be noted that the geographical focus of the research was limited to the Republic of Croatia. Therefore, the generalizability of the results to other geographical regions may be limited, particularly those without similar sharing transportation systems. Recommendations and guidelines for further research can be proposed in several directions. Firstly, since studies on the sharing economy in accommodation are prevalent in the literature, researchers should focus on exploring other sectors of the sharing economy, like housework on demand or other areas of research. Moreover, future research

should focus on the service provider's perspective, in all areas of the sharing economy. Also, another recommendation for future research involves the examination of user behavioral outcomes. Instead of focusing solely on behavioral intentions, future research could measure the final outcomes with regard to creating loyalty. Such research could further confirm the present results or point to different directions for future studies.

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CREATION OF POSITIVE ATTITUDES OF EMPLOYEES AS AN ESSENTIAL FACTOR IN THE EFFECTIVE IMPLEMENTATION OF ORGANIZATIONAL CHANGES

ABSTRACT

The paper is directed towards the role and contribution of social psychology in positioning the attitudes of employees in the field of organizational change management. Numerous researches, published so far, were indicating the role of employees in supporting or resisting organizational changes, but without pointing to underlying causes of them. The aim of this paper is to point out the complexity of mental constructs of employees' behaviour in the processes of organizational changes through the structure of employees' attitudes (cognitive, affective and conative) and to prove that positive and negative attitudes represent a supporting or limiting process of these changes. The Likert five-point scale method with 12 constructed statements (four for each component of attitudes) was applied. The data was collected through an online survey of employees on a sample of 120 respondents during 2022. At the same time, the second Likert's five-point scale was applied with the aim of collecting the opinions of entrepreneurs on the participation of employees in organizational changes. More knowledge from this research is presented through partial correlations. There is a significant mismatch between the cognitive and affective components, as well as the conative with the previous two in the employees' attitudes. A strong interrelationship was observed between the affective component of employees' attitudes and the entrepreneur's opinion about employee participation in organizational changes. A connection of medium strength was established between the cognitive component of employees' attitudes and the perceived claims of entrepreneurs. The findings in this research can be useful for managers in creating positive attitudes of employees before implementation of organizational changes. They indicate the need to reinvent the existing practice of HRM in creating positive attitudes of employees.

Key words: *employees' attitudes, organizational changes.*

1. Introduction

Most of the authors who were involved in research in the field of organizational changes noticed and emphasized the resistance offered by employees, but also by other stakeholders, which represented a significant obstacle in the faster implementation of these changes. Most often, resistances are focused through a spectrum of different negative emotions such as anger, rage, mistrust, nostalgia, fear, etc. (Madera & Smith, 2009). Knowledge about emotions, on the other hand, clearly confirms and indicates that they are of a short-term nature and that as such they cannot significantly influence the forms of long-term behavior of people, including employees (Fox & Spector, 2002).

If the claims that emotions are the main culprit of employee resistance to organizational changes were true, then the frequent long-term and persistence of such resistance would not be evident.

Thus, there is an obvious gap between the numerous, published claims that employees resist organizational changes as a result of accumulated negative emotions and knowledge about the short duration of such emotional states. The results are visible: there is slow progress in knowledge about the identification of resistance from employees to organizational changes, and there is even less knowledge of how to effectively and quickly prevent and solve this resistance (Nicholson, 2011). The problem most likely lies in a completely different direction and content. In the fact that in the management of human resources, and then also in the management of organizational changes, the attitudes of employees as the most complex mental structures are ignored. Emotions are only a part of attitudes (their component) and it is not realistically possible to consider them separately and solve them without including attitudes. The attitudes of employees are hardly known or they are misunderstood and interpreted (Further et al, 2010). They are often equated with concepts such as: understanding, opinion, view of the world, which is basically very wrong. Nor is the method of monitoring and researching them known (Glaso et al, 2006). Different scales are most often used: Likert scale, Stape's Guttman scale, semantic differential, multidimensional, etc. In this way, they are not investigated and followed and instead focus is only on one of the components of attitudes - emotions (Mudd, 2016). In this work, we will therefore try to point out attitudes as complex mental structures and the need to finally start monitoring, analyzing, creating and generally researching them both in theory and in the practice of managing human resources and organizational changes.

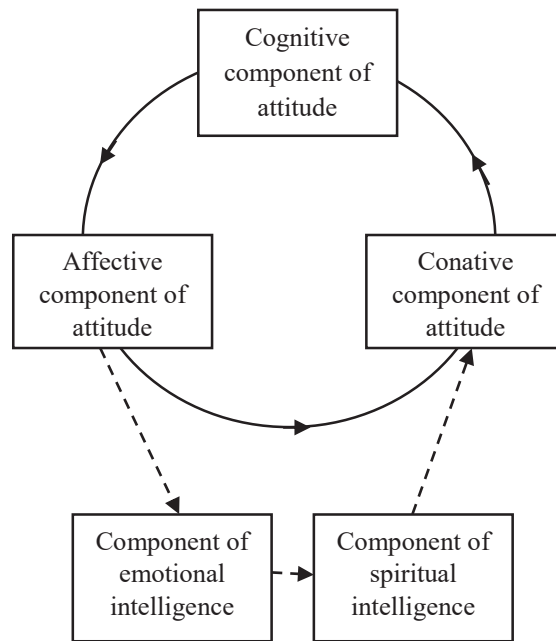
2. Framework dialogue

2.1. Definition and mental construct of employees' attitudes

It is a well-established and to this day generally accepted claim that attitudes were defined by Allport about 70 years ago and then determined that they are solid, complex mental products that are composed of three components: cognitive (cognitive), affective (emotional) and conative or active. (Allport, 1972). Recently published works in the field of employee attitude research were also noted, of which there were indeed many (Srirastav, 2015; Andrew, 2017; Gupta, 2016; Soale & Akudugu, 2021; Sumona & Haider, 2021; Dartley & Jenkins, 2007).

Although the definition given by Allport has been maintained to this day both in theory and in practice, sometimes with minor modifications, it contains several doubtful elements (Fig. 1). Namely, emotions (affects) as an essential component of attitudes are short-lived in themselves and, therefore, in a short time (most often) changeable categories (Rajah et al, 2011). This gives grounds for doubting that as such they can give stability and firmness to attitudes, since a number of studies confirm that these are very persistent, firm and stable mental structures that most often determine certain behavior of people. On the other hand, knowledge created under the auspices of emotional intelligence as a broader concept of access to emotions and its research indicate that only the creation of this type of intelligence gives emotions exactly that missing firmness and stability (Cross & Travaglione, 2003).

Figure 1: A new approach to the structure of employees' attitudes

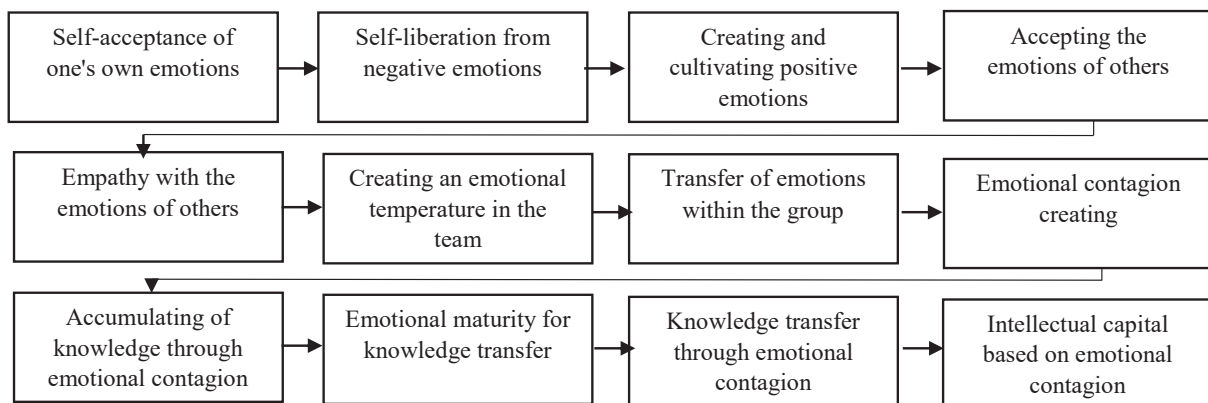


Source: Author

Therefore, it can be justified to claim that emotions by themselves cannot be a component of attitudes, at least not for the purposes of human resources management, but, on the contrary, it is emotional intelligence.

Emotional intelligence is a much broader and more comprehensive mental construct than emotions in the narrow sense. It includes a number of contents and relations (fig.2).

Figure 2: Structural content of emotional intelligence



Source: Author

Unlike cognitive intelligence, the term emotional intelligence is defined through the ability to understand oneself and others with whom people are connected and adapt to the environment, in order to be more successful in solving emotional needs (Bar-on, 2003). Likewise, without an established spiritual intelligence, it is difficult to assume that the linear course of the cognitive and affective components will by itself lead to conative and thus to appropriate behavior as a consequence of formed attitudes among employees (Dent & Higgs, 2005). In addition to

emotional intelligence, it is necessary to include spiritual intelligence in the consideration of the mental concept of employees' attitudes (Martinez et al, 2011). The spiritual intelligence of an individual represented through his system of adopted spiritual values, but also through the organizational culture based on these values, is also a component that gives stability and strength to the attitudes of employees (Fry, 2003). Therefore, attitudes will be actualized through the appropriate form of employee behavior only if, in addition to the cognitive component, there is an implemented emotional and then spiritual intelligence in the organization, both at the individual level and at the level of the work group and organizational culture.

2.2. Behavior of employees in organizational changes

The behavior of employees in the context of organizational changes can also be observed through their attitudes towards these changes and expectations of changes (Kegan & Lahey, 2009). Depending on whether these expectations are small or large, and whether they are positive or negative attitudes of employees towards changes, different forms of employee behavior are possible (Fig. 3). If employees' expectations are high, and they are accompanied by positive attitudes, then they will accept changes, actively participate in them and positively influence other members of the organization (Stewart & Pietro-Garcia, 2008).

Figure 3: Behavior of employees towards organizational changes and attitudes towards these changes

Attitudes of employees towards organizational changes	positive	observes evaluates tactics suspects	accept actively participates spreads positive emotions it is constructive
	negative	ambivalent without interest obstructs spreads negative emotions	destructive cynicism passivity he is tactful and cautious
		small	big
Expectations of employees from organizational changes			

Source: Author

On the contrary, if the attitudes of the employees are negative and if they also have low expectations of changes in the organization, then the behavior of the employees will be a negative sign.

Disinterest, apathy, ambivalence and obstruction of change will certainly be just some of these forms of employee behavior. In the case of positive attitudes of employees, where their expectations of changes are low, their cautious behavior is also noticed. They will analyze the changes and the benefits they bring, and they will observe and evaluate the situational parameters more than they will actively participate in these changes.

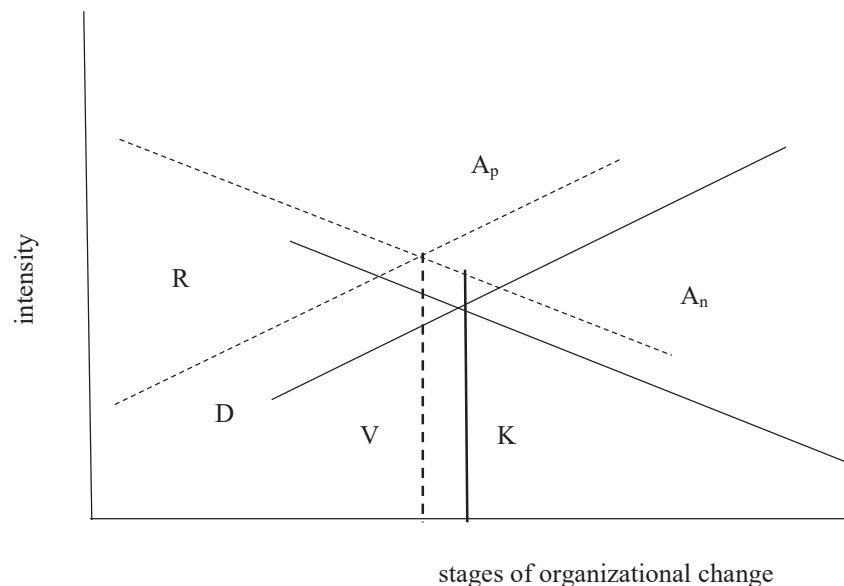
One of the more significant difficulties in positioning the behavior of employees in organizational changes is that there is no greater homogeneity among the authors in terms of agreement on the number and content of the phases of these changes. This makes it more difficult to locate the resistance and support of employees in changes. Lewin talks about three phases (unfreeze, change and refreeze), placing emphasis on the leadership on the second phase, where persuasion of employees or communication is necessary with the aim of eliminating resistance to change (Burke, 2013). Nadler's conformity model instead of stages includes four elements in organizational changes where employees and managers with their overall abilities, weaknesses, characteristics are considered as a key element in effective changes (Hiatt & Creasey, 2012). Based on the Kubler-Ross change curve, Bridges' model of organizational change is a more thorough approach to change management focused on people or human potential (Bridges & Bridges, 2009). According to this model, the key to change management is not the results of the change, but the way employees leave the old and accept the new state. The model has the symbolic name "crossing over bridges". When people are first introduced to change, they may experience resistance and emotional discomfort. Some of the emotions include fear, resentment, anger, denial, sadness, frustration and most disorientation. The first step of change begins with essentially leaving the existing state and is usually the most emotional for employees. Failure to acknowledge employees' feelings can lead to employees rejecting upcoming changes, so it is important to clearly communicate the purpose and benefits of the change. These authors clearly refer to the cognitive and emotional component of attitudes. V. Satir also developed the SOCM model (Satir Organizational Change Model) based on the Kubler-Ross change curve. Employee behavior is tracked here through five stages: late status quo, resilience, chaos, integration, new status quo. Each phase is characterized by a corresponding form of employee behavior. Thus, for example, during the chaos phase, people feel stressed, confused, vulnerable, afraid, and even sometimes panicked. Because of these feelings, management may withdraw into familiar daily tasks, ignore the chaos around them, withdraw completely, or exhibit unusual behavior. The sense of panicky urgency that arises can cause quick solutions to be sought. This happens because they are desperately looking for a solution out of the chaos. Conversely, this desperation can lead to a period of chaos to be somewhat creative (Bridges & Bridges, 2009). Scott and Jaffe's model of change is also known as the cycle of resistance. It focuses on the people affected by the change. Specifically, it focuses on how people come to terms with the organizational changes that occur (Miller & Proctor, 2016). The cycle of resistance shows the four stages that people go through when going through organizational change. Each stage represents part of the journey we go through when we come to terms with change. It involves letting go of the past and welcoming the future. The point of the model presented by Thaler and Sunstein refers to the principle that even a small action can influence people's choices or the way people behave (Thaler & Sunstein, 2008). It focuses on engaging people in change by knowing how people make decisions that can support or hinder change. It focuses on the design of choice that is responsible for guiding our preferences and influencing the choices we make. It shows how to indirectly influence individuals without taking away their freedom of choice. It discourages any change in employee behavior that follows strict orders and instructions. Cameron and Green claim that almost two-thirds of all major changes in organizations fail. This is quite worrying information (Cameron & Green, 2019). In one extensive survey, they found that 80% of CIOs in organizations said that resistance, not a lack of technical skills or resources, was the main reason major projects failed. They argue that the real problem is that change project managers plan and execute major changes in ways that create inertia, apathy, and employee opposition. The better one understands what causes resistance, the easier it will be to build support for the effectiveness of change. Kotter's eight-step model of change also focuses more on the people experiencing major organizational changes rather than the changes themselves (Kotter, 2012). It is based on setting

up a structure for change and constantly checking for obstacles to it. Removing obstacles can empower the people needed to execute the vision and can help the change move forward.

2.3. Employee attitudes and organizational changes

There are at least two important value features of the role of attitudes and attitude management of employees in organizational changes. The first is that attitudes are a kind of warning signals to change managers that there will be resistance or support for changes (Sanchez-Burks & Huy, 2009). Fig. 4 shows the curves of positive attitudes of employees (A_p), negative attitudes of employees (A_n), resistance of employees to organizational changes R and support of employees to organizational changes (D) in a two-dimensional map (the abscissa shows the stages of organizational change, and the ordinate shows the intensity of the curves).

Figure 4: Attitudes of employees in organizational change



A_p – curve of positive attitudes of employees; A_n – curve of negative attitudes of employees; R – resistance curve of employees to organizational changes; D – employee support curve for organizational changes; K and V – breaking points

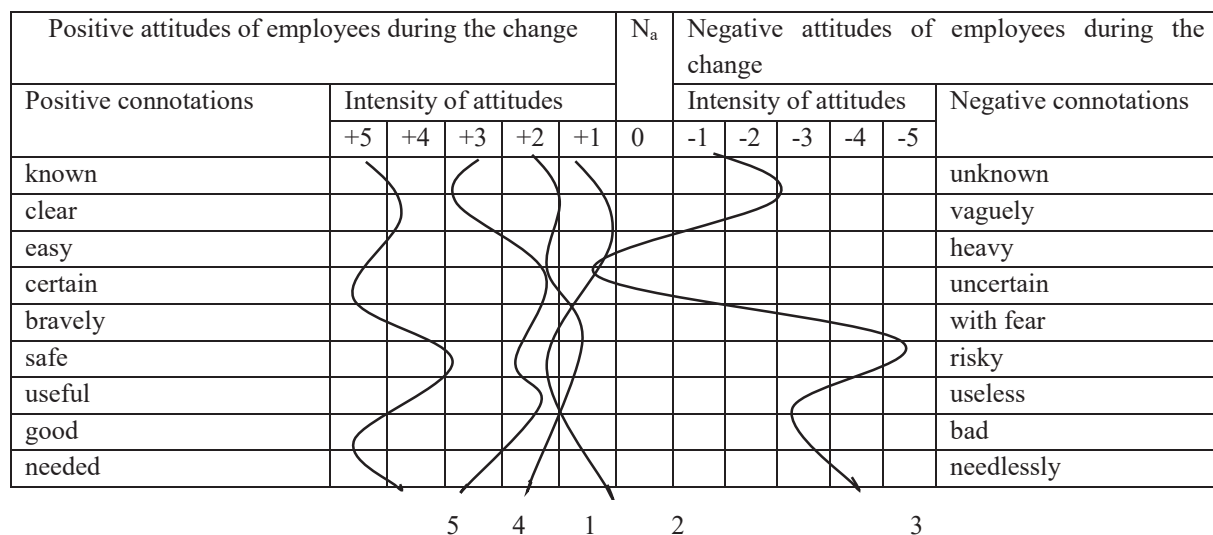
Source: Author

The point of intersection of the curves of positive and negative attitudes of employees (V) appears before the point of intersection of the curves of resistance and support of employees to organizational changes (K). This statement is correct considering that the attitudes of the employees are manifested before the activities of the employees take place - in this case, support for changes. In this way, they can have the value of early warning signals to organizational change managers that resistance will soon weaken significantly and support for change will strengthen.

Another significant characteristic is that with the help of monitoring, predicting and creating positive attitudes of employees, it is possible to significantly contribute to reducing the role and intensity of negative attitudes and increasing the intensity and stability of positive attitudes of employees towards organizational changes (Newcombe & Ashkanasy, 2002). By analyzing the curve of employees' attitudes (Fig. 5), it is possible to influence the individual components of

attitudes, that is, the sources of each of the targeted components. This is shown using the semantic differential. Semantic differential is a scalar technique that, with the help of differentiating connotative from denotative meanings of words and pre-set associations collected from respondents, enables the identification of a number of metric attributes of attitudes. On the left side are presented positive associations that enable the identification of positive attitudes, and on the right negative associations for determining negative attitudes in the respondents. Both associations have five degrees of intensity in which 1 indicates very weak attitudes, 2 weak, 3 medium strong, 4 strong and 5 very strong attitudes. On the border between positive and negative associations, there is a field N_a , which indicates that there is no clear differentiation in the associations among the respondents. The first three associations refer to the cognitive dimension of the attitude, the second three to the emotional dimension, and the third three to the conative dimension.

Figure 5: Monitoring the attitude curves of employees during organizational change according to the SOCM model



Curve labels: 1 – late status quo; 2 – resistance; 3 – chaos; 4 – integration; 5 – the new status quo

Source: Author

As an example of the SOCOM model, five curves are presented that reflect the movement of employees' attitudes in the respective phase of organizational change. These curves are aggregated sizes and represent average values of employee associations. Late status quo phase that describes how things are just before the change participants become aware of a major and often disruptive change in their previous work. It simply describes the time before a major change changes everything. The movement of the curve of employees' attitudes is exactly the same (1). It is visibly stable, without significant oscillations and moves in the area of slightly positive attitudes, but has not yet entered the area of negative ones. The resistance phase (curve 2) is the phase of slight (initial, symbolic) resistance by employees when something happens that disturbs their comfort with the late status quo. Employees become aware of some new data and information that they did not have before. This new consciousness is called the foreign element (Bridges & Bridges, 2009). Now the positive attitudes of employees weaken even more, and their curve is less stable and sometimes enters the area of negative associations. Already in the phase of chaos, the attitude curve (3) is extremely unstable and people are now in unknown territory. Old ties are being broken. The old ways of doing things are no longer

appropriate. The curve of employees' attitudes is now moving into the area of positive attitudes of medium intensity, greater stability, and shows a tendency to move towards strong attitudes. In the new status quo phase (curve 5), change begins to level off until people master their new skills and new status quo patterns. What used to be new ways of working are now becoming the new norm and a new status quo is being established. The course of the curve is increasingly stable and moves in the zone of strong to very strong attitudes. Managers should encourage employees to celebrate their success and continue to monitor attitudes and changes in their structure and movement.

The great value of the displayed attitude curves is that even through their visualization itself, it is possible to determine in which associations and components of attitudes oscillations occur, and in this way valuable information is obtained as a basis for creating effective communication with employees.

3. Goal and Hypotheses

The aim of the paper is to point out the importance of the role of employees' attitudes as complex mental constructs in organizational change processes and to prove that positive and negative attitudes represent supporting or limiting processes of these changes. In accordance with this goal, the following four hypotheses are put forward:

H1 – Employees with sufficient knowledge about organizational changes create positive feelings towards them.

H2 - Employees with positive feelings towards organizational changes support these changes.

H3 – Employees with negative feelings resist organizational changes.

H4 – Employees with positive attitudes towards organizational changes support these changes.

All four hypotheses were tested in the paper.

4. Methodology

The primary data for this research was collected through an online survey on a sample size of n=120. The respondents were permanent employees in medium-sized and small companies from various industries in the area of five counties in northwestern Croatia: Zagrebačka, Krapinsko-Zagorska, Varaždinska, Karlovačka and Koprivničko-Križevačka. The selection of companies was random. Respondents were taken from an alphabetical list applying selection steps depending on the size of the company.

The sample size and sampling technique are based on stratified random sampling as presented by Cooper and Schindler in a situation where the population is not homogeneous (Cooper, Schindler, 2008). The sample includes only those respondents who during their employment in that company were exposed to at least one significant organizational change. The significance of the change was defined by the subjective opinion of the company's management. Of the sent questionnaires, 96 respondents responded with correctly and completely filled questionnaires, which can be considered an acceptable selection considering the type of survey.

Table 1: Demographic map of respondents

No.	Demographic characteristic	Number of respondents	Percentage	Cumulative
A.	Gender structure:			
	Men	31	32,68	32,68
	Women	65	67,32	100,00
B.	Age structure (years):			
	Until the 25	17	17,71	17,71
	26-40	34	35,42	53,13
	41-60	37	38,54	91,68
	61 and over	8	8,33	100,00
C.	Structure by professional training:			
	Secondary vocational education	67	69,79	69,79
	High vocational education	29	30,21	100,00
D.	Size of the company from which they come (total number of employees):			
	Until the 10	14	14,58	14,58
	11-30	28	29,17	43,75
	31-50	35	36,45	80,20
	51 and over	19	19,80	100,00

Source: Author

The survey was conducted in the second half of 2022. It was completely anonymous and the respondents were informed of this before participating in the survey. They were also informed about the purpose of the survey.

Secondary data were collected from the human resource management and organizational change databases Scopus, EBSCO, PsycARTICLES and ScienceDirect.

The most frequently represented respondent was female (67.32%), between the ages of 41 and 60 (38.54%), had a secondary vocational education (69.79%) and came from a company with between 31 and 50 employees (36,45%).

The test used the Lickert five-point scale method, which is common in this type of research. The scales are composed of two measuring instruments. The first measuring instrument (first scale) was used to determine employees' attitudes towards organizational changes in general, but related to their experiences with these changes. It contained 12 constructed statements (four for each attitude component). In order to determine the cognitive component of attitudes, an effort was made to determine with which knowledge, information, assumptions and beliefs the respondents entered and participated in the respective organizational change. These claims are: (1) I had sufficient information about the impending change; (2) I tried to familiarize myself with what awaits us; (3) I trusted the board and management that we would all be much better off with the change; (4) I assumed that the change was being made to make them a more successful company. The second group of statements contained emotional elements of employees' attitudes towards organizational change. These claims are constructed to contain at least some basic elements of emotional intelligence. They are: (5) I was afraid of change and everything it brings; (6) I was not looking forward to the fact that we would all be better off after the change; (7) I did not encourage my colleagues and spread optimism in the work group/team; (8) I didn't convince others not to be afraid and afraid of what will happen after the change. The third group of claims is aimed at determining the conative component of attitudes. Thus, with the aim of determining to what extent and in what form knowledge and emotions acted according to a certain form of employee behavior during the change. Did they get involved by supporting the changes or by resisting them? These claims are: (9) I tried to learn

and generally prepare myself to be successful in my work after the change in business, (10) I actively helped during the implementation of the change in everything that was asked and expected of me; (11) I did not get involved personally in anything during the change, because I considered that it was not my responsibility; (12) I was not afraid of what would happen to us tomorrow and I was not on the sidelines. All claims were constructed by the author based on the study of the cited literature.

Table 2: Testing of respondents' claims

Number of statement	Relative number of weighted statements	Cumulative	Coefficient of variation	Cronbach alpha
1	0,0247	0,0247	0,0314	0,7482
2	0,1136	0,1383	0,0537	
3	0,0462	0,1845	0,1316	
4	0,2304	0,4149	0,0739	
5	0,3105	0,7254	0,2063	0,8536
6	0,3748	1,1002	0,0581	
7	0,4372	1,5374	0,4203	
8	0,3391	1,8765	0,2095	
9	0,2307	2,2072	0,1618	0,7243
10	0,1075	2,2147	0,2077	
11	0,2384	2,4531	0,1379	
12	0,2503	2,7034	0,0728	

Source: Author

The scaling levels were: (1) does not apply to me at all; (2) slightly related to me; (3) only partially applies to me; (4) refers to me; (5) that it suits me completely. All claims are defined and tested specifically for this research.

The statements were weighted with weight ratios that were determined and identified with the respondents' scaling degrees and are presented in an aggregated form in Table 2. Cronbach's alpha, an indicator of the consistency of the statements presented, was determined for all three components of attitudes. For the cognitive and conative component, it has acceptable values (0.7482 and 0.7243) since it is in the range of acceptability (07, to 08), while for the emotional component it is good (0.8536) since that range is from 0.8 to 0.9 (Cronbach, 1950, 297). Accordingly, all 12 claims are in the consistency area and as such can be used for further proceedings.

At the same time, the second Lickert's five-point scale was applied with the aim of collecting the opinions of management representatives on the participation of employees in organizational changes. The following six statements were constructed and included in the scale: (1) only those employees participated in the changes who wanted to do so on their own initiative, (2) the majority of employees behaved passively and were not interested in the changes; (3) employees expected us to further motivate them to get involved and support us in the change; (4) there were conscious and organized resistances and rebellions of employees during the change; (5) the majority of employees did not trust us and cooperated in the change; (6) employees were afraid of what would happen after the change even though we tried to dissuade them. The degrees of agreement with the statements were: (1) completely false; (2) mostly incorrect), (3) mostly correct; (4) correct; (5) completely false. The claims were constructed specifically for this research and tested.

Table 3: Testing the claims of management representatives

Number of statement	Relative number of weighted statements	Cumulative	Coefficient of variation	Cronbach alpha
1	3,4082	3,4082	0,2306	0,8206
2	3,7045	7,1127	0,1158	0,7428
3	2,6390	9,7517	0,0462	0,7105
4	4,2271	13,979	0,3715	0,9304
5	4,3584	18,337	0,2972	0,8673
6	4,0207	22,358	0,4603	0,8402

Source: Author

The statements of the management representatives were weighted with weight ratios that were determined and identified with the scaling degrees and are presented in an aggregated form in Table 3. Cronbach's alpha indicators of consistency were determined for each statement and all are in the range of acceptable consistency (from 0.7 to 1,0). Claim number 4 is excellent, while the others are in the area marked as good (0.8 to 0.9) and acceptable (0.7 to 0.8). There were no questionable and insufficiently consistent statements.

Statistical processing of the collected primary data was performed using the software packages Microsoft Excell and SPSS 21.0 (Statistical Package for Social Sciences).

5. Results

Table 4 presents the partial correlation coefficients of statements that reflect each of the three components of attitudes, as well as the interconnections with other statements that characterize the other two components of attitudes.

The coefficients of partial correlation between cognitions, beliefs and assumptions (cognitive component of attitudes) about organizational changes and feelings towards them (emotional component of attitudes) do not show significant interconnection. This connection is of weak intensity. In other words, the cognitive dimension of attitudes did not result in the creation of positive emotional relations of employees towards organizational changes

Table 4: Partial correlation coefficients of employee statements

1	0											
2	0,4401	0										
3	0,5745	0,6583	0									
4	0,6866	0,7072	0,5306	0								
5	0,1628	0,1074	0,2825	0,3628	0							
6	0,3372	0,4157	0,3904	0,3076	0,7479	0						
7	0,2830	0,3517	0,4263	0,1806	0,5244	0,8157	0					

8	0,250 3	0,414 7	0,428 3	0,369 1	0,409 2	0,373 6	0,426 9	0				
9	0,225 4	0,391 6	0,452 1	0,297 3	0,472 6	0,604 7	0,473 6	0,572 4	0			
10	0,371 5	0,394 4	0,410 6	0,259 1	0,627 0	0,479 4	0,528 8	0,461 1	0,421 6	0		
11	0,487 9	0,317 2	0,321 0	0,220 6	0,684 4	0,529 3	0,731 4	0,590 6	0,753 3	0,824 5	0	
12	0,150 8	0,226 3	0,418 7	0,437 2	0,528 3	0,475 2	0,550 2	0,738 5	0,601 8	0,770 3	0,686 4	0
	1	2	3	4	5	6	7	8	9	10	11	12

Source: Author

The conative component of attitudes (intended activities of employees towards organizational changes) does not show a significant interconnection with cognitive constructs, while the partial correlation coefficients of the cognitive component indicate a stronger interconnection of it with emotional constructs.

The internal consistency among the statements of the cognitive, emotional and conative components of attitudes is pronounced and indicates a good interdependence.

Table 5: Partial correlation matrix of management representatives' statements and employees' attitude components

Assertions of management representatives	Components of employee attitude			Attitudes of employees as a whole
	Cognitive	Emotional	Conative	
1	0,3156	0,5274	0,4106	0,4711
2	0,2681	0,7716	0,3527	0,5836
3	0,3717	0,4849	0,3462	0,4103
4	0,3844	0,6648	0,2708	0,6244
5	0,2761	0,8315	0,2526	0,7303
6	0,3085	0,7602	0,3401	0,5879

Source: Author

The values of the partial correlation coefficients of the affective component of employees' attitudes about organizational changes with the claims of representatives of the management of the observed companies are noticeable. They indicate a stronger interconnection between these two quantities. In other words, according to the value indicators of the evaluated levels of agreement of entrepreneurs, the behavior of employees in the implemented organizational changes in the form of resistance to them resulted from negative emotional flows since the value indicators of cognitive relations were less pronounced.

Attitudes of employees towards organizational changes as a whole had a strong interconnection with the claims of management representatives about the participation of employees in them.

The average values of the curve of these negative attitudes are approaching the average values of the negative emotional elements that determine these attitudes.

6. Discussion

Cognitive elements, as long as they are well and thoughtfully constructed and developed, usually affect the positive flow of the emotional component of attitudes. There are a number of possible reasons why the cognitive elements of employees' attitudes (knowledge, beliefs, assumptions) in this research did not lead to the emergence of a significant positive emotional component of employees' attitudes towards organizational changes. There are two possible key reasons. The first - that the information about the upcoming changes was not sufficiently timely, properly and substantively directed and that there were generally errors in communication between the representatives of the management, i.e. the leaders of those changes and the employees as participants in those changes. The cognitive component should be that "crossing over bridges" mentioned by Bridges and Bridges. The key to this transition is thorough and timely preparation of employees for the upcoming change. The meaning and importance of the cognitive component is clearly indicated. If this is not done properly, it is quite likely that there will be emotional disorientation of employees and resistance instead of support for changes. Even a small management action in the direction of creating and strengthening the cognitive component can influence positive emotions and positive behavior of employees, as Thaler and Sunstein point out. This statement points to one important fact: that the emotions of employees and their role in organizational changes are not an independent category, but on the contrary, that they depend on the state of the cognitive component. Thus, the function, place and meaning of employees' attitudes comes to the fore and points to the meaning of knowing, the value of monitoring and creating attitudes as an essential factor in effective organizational changes. Another possible reason is that the employees' expectations of these changes did not fit into their existing system of attitudes that they already have. Every person, including employees, has a whole set of previously formed attitudes about their life goals and values. So, it often happens that one does not accept emotionally all the cognitive knowledge that deviates from the existing attitudes. Here, it is important to have accumulated knowledge about the experience of employees with earlier organizational changes, since experience is one of the important factors in the formation of attitudes in general, and thus also the attitudes of employees towards organizational changes.

The intended activities of employees in the form of various forms of resistance or support to organizational changes are a reflection of the formed cognitive and affective constructs of attitudes. The partial correlation coefficients of the conative and cognitive components do not show a significant interconnection, in contrast where the connection between the conative and affective components is more pronounced. It follows that the behavior of employees towards organizational changes was more subject to affective than cognitive constructs. Either these cognitive constructs were untimely, insufficient or poorly communicated, or they were suppressed by emotional constructs that had a stronger influence on the intended behavior of employees. This remains an open and unsolved question.

Emotional constructs played a prominent role in the behavior of employees towards organizational changes, according to the statements made by representatives of the managements of the observed companies. They thus gave a key feature to employees' attitudes towards these organizational changes in relation to the other two components of attitudes: cognitive and conative. Because these were negatively colored emotions and attitudes towards organizational changes were negative.

7. Conclusion

It has already been said in the text of the paper that social attitudes in general, including the attitudes of employees, are very complex psychological, mental and social constructs and that they should be approached and investigated with due care and caution. An exclusively interdisciplinary approach is certainly necessary and possible. In it, the place and role of a psychologist with experience in the field is irreplaceable. This is also a kind of limitation considering that there are usually not enough of these experts and scientists in general, and even fewer of them are included in the field of researching employees' attitudes.

Given that monitoring and creating employees' attitudes is a demanding, complex and long-term process, it should be determined whether it will cover all employees who participate in the changes, the key bearers of the changes, or those leaders of teams and working groups who will then transfer their positive attitudes to other participants in the changes. It is also necessary to bear in mind the fact that managing employees' attitudes is not only resource- and time-consuming, but also a continuous and organized process, and by no means a one-time act, an activity conditioned by a specific situation and need.

There are several important results of this research that need to be emphasized. The positive emotional constructs of the attitude did not significantly correlate with the cognitive constructs, which now opens a new dialogue framework that certainly points to the need for new, additional research. Thus, the first hypothesis is not confirmed and should be rejected. The behavior of employees towards organizational changes was more subject to affective than cognitive constructs. And this remains an open and unexplained question and it is not possible to offer it here considering the content and goal of the paper. The third hypothesis, which claims that employees with negative feelings resist organizational changes, can be confirmed or accepted. Therefore, the second hypothesis, which claims that employees with positive feelings support organizational changes, cannot be accepted, given that these positive emotional constructs have not been established and therefore could not be correlated with cognitive constructs. Emotional constructs played an important role in employees' behavior towards organizational changes. They thus gave a key feature to employees' attitudes towards these organizational changes in relation to the other two components of attitudes: cognitive and conative. This fact gives change managers the knowledge of the need for a more productive approach to employee resistance that marks organizational changes. It indicates that these resistances that spring from emotional constructs are not immutable in nature.

One of the limitations that is worth pointing out in this research is that the author lacks or was not available knowledge about the same or similar research, so that it would be possible to compare this knowledge with this one and thus continue the dialogues started earlier. It would also be worthwhile to continue the continuity of research on this topic in order to be able to monitor dynamic shifts and changes in the acquired knowledge. Organizational changes happen and will happen all the time, because they are a fundamental feature of future entrepreneurship and business success.

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A scientific paper

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ELECTRICITY PRICES FORECASTING ON THE DAY-AHEAD MARKET – PERFORMANCE COMPARISON OF SELECTED MACHINE LEARNING MODELS

ABSTRACT

This paper examines performance of selected frequently used machine learning models for the purpose of forecasting the day-ahead prices in the German power market. Data for 2017 is used as the initial training data set in order to forecast the day-ahead prices up to one month ahead. The forecasting process is repeated by rolling the training set one month forward while keeping its length fixed. Thus, a moving window of training data which serves as a base for each of the subsequent forecasts is obtained. By employing this methodological framework forecasts for the 2018 and for the 2021 are made. This allows the comparison of forecasting performance in the period of low market volatility (2018) with the high market volatility observed in the 2021. The following machine learning methods are employed: Random Forest, Lasso, XGBoost and Support Vector Machine. The accuracy of forecasts for each method is assessed in both periods analysed based on the root-mean-squared error (RMSE). Computational complexity in terms of software running time needed to produce the forecasts is also reported. Research findings show that Lasso model seems to produce more accurate forecasts than the other three analysed models in the period of increased volatility (2021) which, combined with the significantly lower computational complexity, adds to its superiority. However, in the less volatile period (2018) accuracy of Lasso model was by far the worst. Support Vector Machine model's forecasts dominated other models in this period but overall performance is overshadowed by the model's computational complexity. Random Forest and XGBoost models seem to exhibit more robust performance with forecast accuracy deteriorating slightly under adverse market conditions while also performing similarly well. Importance analysis points out wind forecast and 24-hour lagged day-ahead price as the most important external predictor variables, while the load forecast completes the top three list.

Key words: *forecast accuracy, market volatility, predictor importance.*

1. Introduction

The successful introduction of new players in the energy market in the green transition process depends heavily on the quality of electricity prices forecasting. The lower predictability in the power generation process coming from the renewable energy sources has increased stochasticity in the power system. In order to mitigate the problem and balance the demand and supply, the development and assessment of efficiency of various types of energy storage systems has attracted a lot of attention. Building on this further, aggregators as additional entities are expected to operate these distributed energy resources to provide either supply– or demand–side flexibility by acting as virtual power plants or flexible consumers. According to IRENA (2018, pp. 13) technical requirements regarding aggregator software include not only: “aggregation software and algorithms to calculate the optimal operation of each unit” but also “advanced demand and supply forecasting models/platforms for optimised scheduling of dispatchable distributed energy resources”. The importance of forecasting is even more stressed after a sharp rise in the level and volatility of electricity prices which has been continuously present in the power market for the past two years. While such conditions may offer greater earning potential for the distributed energy storage operators, especially energy storage systems as for instance noted in Zoričić et al. (2022) and Jurčević et al. (2022) this can be offset in case of poor forecasting performance. Backed by the growing popularity of machine learning models for this purpose, this paper examines performance of selected frequently used machine learning models in this field.

The focus of this research is on short-term forecasting i.e. day-ahead forecasts for which statistical and artificial intelligence approaches are the most suitable so the vast majority of literature body lies in that area of research. Relevant authors in this field, such as Weron (2006), have long ago realized that electricity price forecasts have become a key input to the decision-making processes of energy companies. A very detailed and wide coverage of statistical approaches to modelling and forecasting electricity loads and prices in general was presented by Weron (2014) who provided famous taxonomy for classifying all of the approaches in this area of study, Nowotarski & Weron (2018) extended that work by including probabilistic electricity price forecasting. There are also reviews that focus specifically on short-term electricity price forecasting methods such as Cerjan et al. (2013); Jiang & Hu (2018) and Vlah Jerić (2020). One of the newest reviews by Lago et al. (2021) also presents a set of best practices and provides a set of open access benchmarks.

Lately, machine learning techniques have become increasingly popular for making short-term predictions of electricity prices. Even more recently, deep learning and different combinations with other approaches have become especially investigated. Namely, the efficient construction of improved prediction models that are utilized for electricity price forecasting has been made possible by the rapid development of deep learning algorithms and metaheuristic optimization methodologies. However, as pointed out by Arvanitidis et al. (2022), although complicated combinations of different algorithms show superior performance in many cases, they are rarely compared with established simpler methods that can also perform well. Also, the performance metrics used are questionable in some cases and the statistical testing of differences in results is rarely performed. On the other side, there are research approaches in this area that do not focus on development of more advanced predictive systems, but rather try to make use of various external variables. A recent research by Naumzik & Feuerriegel (2020) compares the performance of several well-established machine learning methods for forecasting electricity prices when including different predictors stemming from supply side, demand side, fuel related and economic influences and show that competitive results can be achieved with simple models.

In our research we adopt the view of Naumzik & Feuerriegel (2020) and follow their approach by selecting four frequently used machine learning models for the purpose of assessing forecasting accuracy of the day-ahead electricity prices and analysing variable importance in the models. Our contribution to the taken approach and existing literature is related to several aspects. Firstly, motivated by the papers who deal with effects of the power market volatility in the forecasting process, such as Bunn et al. (2016) and Shi et al. (2021), we show not just how the increase in volatility affects the forecast accuracy but provide insight regarding the performance of the analysed models. Secondly, following the work of Aldrich (2020) we include box plots when analysing forecast errors and variable importance which enables us to concisely present a more complete set of information upon which our conclusions are drawn. Lastly, we rerun each of analysed machine learning models four times for each forecast made in order to increase the validity of obtained results.

The four models employed are: Random Forest, Lasso, XGBoost and Support Vector Machine. We use data for the German power market with year 2017 serving as the initial training data set in order to forecast the day-ahead prices up to one month ahead. After initial forecast is made the forecasting process is repeated by rolling the training set one month forward while keeping its length fixed. A moving window of training data is therefore used to obtain each of the subsequent forecasts. By employing this methodological framework forecasts for the 2018 and for the 2021 are made. This allows the comparison of forecasting performance in the period of low market volatility (2018) with the high market volatility observed in the 2021.

The paper is organised as follows. The second section describes data, variables, details of machine learning model forecasting framework and models themselves. The third section presents the findings followed by the conclusion.

2. Materials and Methods

2.1. Data and variables

The research employed information collected from the German power market for three years: 2017, 2018, and 2021. The ENTSO-E webpage provided the wholesale electricity prices for day-ahead prices in 60-minute resolution, while the EPEX-Database provided the intraday prices in 15-minute resolution. Since the intraday prices were not accessible for 2021, the approach described in Jurčević et al. (2022), relying on the spread between the day-ahead and intraday prices, was used to simulate the data which were not otherwise available. Forecasts for wind and solar generation and actual data for wind generation (all for 15-minute intervals) were obtained from the ENTSO-E webpage. Load forecasts and actual load (both 15-minute intervals), imbalance prices and volumes (both 15-minute intervals) were also obtained from the ENTSO-E webpage.

Data has been preprocessed, more specifically centred using preprocess function “center” in “caret” package in R (Kuhn, 2008). Since the day-ahead prices have 60-minute resolution and all of the predictor variables have 15-minute resolution, each entry from the day-ahead dataset has been split into 4 exact entries of 15-minute resolution.

The research utilized lagged day-ahead price variable with lags of 24, 48 and 168 hours and lagged intraday price variable with lag of 24 hours as variables in the analysed models. Additionally, variables of day-ahead forecasts of wind and solar generation together with

lagged actual wind generation of 24 and 168 hours were used. Note that lagged actual solar generation of 24 and 168 hours was omitted because of the high correlation with the solar generation forecast. Furthermore, variables of day-ahead load forecast and actual load with lags of 24 and 168 hours together with variables of price and volume on the imbalance power market were also employed. Finally, dummy variables were also utilized for hour, day and month information where day of the week information consisted of dummy variables weekday, Sunday, and Saturday.

2.2. Data and variables

The methodological framework related to the model training, cross validation and forecasting applied in this research consists of three steps. First, training and cross-validation are carried out on the dataset for the whole year of 2017. After that, the first set of forecasts of day-ahead prices of up to one month is obtained by the model employed. Then, the model is retrained on the new data set by rolling the training set one month forward while keeping its length fixed. A moving window of training data which serves as a base for each of the subsequent forecasts is thus obtained. Therefore, this approach results in retuning the model hyperparameters by taking into account the new data in the training and cross-validation data sets. Thus, the model is retrained 11 times over resulting in 11 sets of forecasts of day-ahead prices of up to one month for both 2018 and 2021. Since the day-ahead prices are being forecasted for the forecasting horizon of up to one month while the training set is being rolled one month forward one would expect the model to be retrained 12 times over per year, therefore producing 12 sets of forecasts per year. However, due to missing data in samples for both years, one model training opportunity and a set of forecasts was lost in each year.

Cross-validation is based on the approach employed by Naumzik & Feuerriegel (2020). The approach is known as time-series cross-validation which relies on a rolling forecasting origin. 44 subsets are chosen from the whole training dataset (i.e. whole 2017) such that they cover the whole year. The subsets consist of 8 days, 7 training and 1 testing day, meaning that the following subset begins at the ninth day. The tuned hyperparameters of the best performing model on testing days from the training subset are used for the testing set forecasting.

Finally, the forecasts were carried out for 2018 and 2021 separately. This implies that forecasting for the 2021 is for the first half of 2021 based mostly on the 2017 data. The intention here was that forecasting on the 2017 data allows for the more direct comparison in different market environments making it harder for the models to anticipate the rise in volatility in 2021. Sets of one-month forecasts for each of 11 forecasts made for both years consisted of about 29 day-ahead forecasts, where each day-ahead forecast consisted of 96 forecasts, one for each 15-minute interval.

2.3. Machine learning models

The research employed four machine learning models: Random Forest, Lasso, XGBoost and Support Vector Machine.

Random Forest model (RF), first introduced in Breiman (2001) is a forecasting method that uses multiple regression trees to predict data. The model is based on the principle of bagging described in Bickel et al. (2001), which involves combining models (decision trees) with low bias and high variance error to reduce variance while maintaining low bias. The bagging technique used in RF helps to stabilize the model by reducing the impact of outliers and noisy

data. More specifically, “RANdom forest GENErator” (ranger) method introduced in Wright & Ziegler (2017) which is optimized for high dimensional data by profiling runtime and memory is used.

Lasso regression as shown in Tibshirani (1996) minimizes the residual sum of squares subject to the sum of the absolute value of the coefficients being less than a constant. Sum of the absolute value of the coefficients can be added to the objective function together with regularization parameter lambda.

XGBoost model introduced in Chen & Guestrin (2016) is a scalable tree boosting system. More specifically it is based on combining regression trees but uses principle of boosting described in Bickel et al. (2001). The principle combines models with high bias and low variance to reduce bias while maintaining low variance.

Finally, Support Vector Machine method (SVM) is the final method used in this research. First proposed in Cortes & Vapnik (1995), it maps data into a higher-dimensional space to better capture nonlinear relationships and finds a hyperplane that separates the data into two regions to perform regression using linear functions. By using this approach, SVR is able to capture nonlinear relationships between the input variables and the output variable while still using linear functions to perform the regression. Variation of the SVM used in the research is SVM with radial basis function kernel.

Forecasting of the day-ahead prices was carried out using “caret” package in R. In order to minimize possibility of tuning one model significantly better than the others, hyperparameters were mostly left at default settings. For XGBoost hyperparameter “eta” was adjusted in order to reduce the algorithm running time. The used hyperparameter values for both default and adjusted settings as well as exact training method for each model are provided below.

For Random Forest, “ranger” training method was used. Number of trees is 500 and minimal node size is 5. Tune length is set to 3 which leads to “mtry” being the set of {2, 10, 18} because there are 18 predictor variables. Finally, splitting rule was chosen from “variance” and “extratrees”.

XGBoost used “xgbTree” training method which chooses maximum tree depth from the set {1, 2, 3}, subsample from set {0.25, 0.5, 0.75, 1} while parameters “nrounds” (number of boosting iterations), “eta” (shrinkage), “gamma” (minimum loss reduction), “subsample ratio of columns” and “minimum child weight” are fixed to 150, 0.1, 0, 0.8 and 1 respectively.

Lasso regression used training method “lasso” and tuning parameter “fraction” from the set {0, 0.01, 0.02, ..., 1}.

Support Vector Machine “radial” training method used “sigma” of 0.04564 and regularization constant C from the set {0.25, 0.5, 1}.

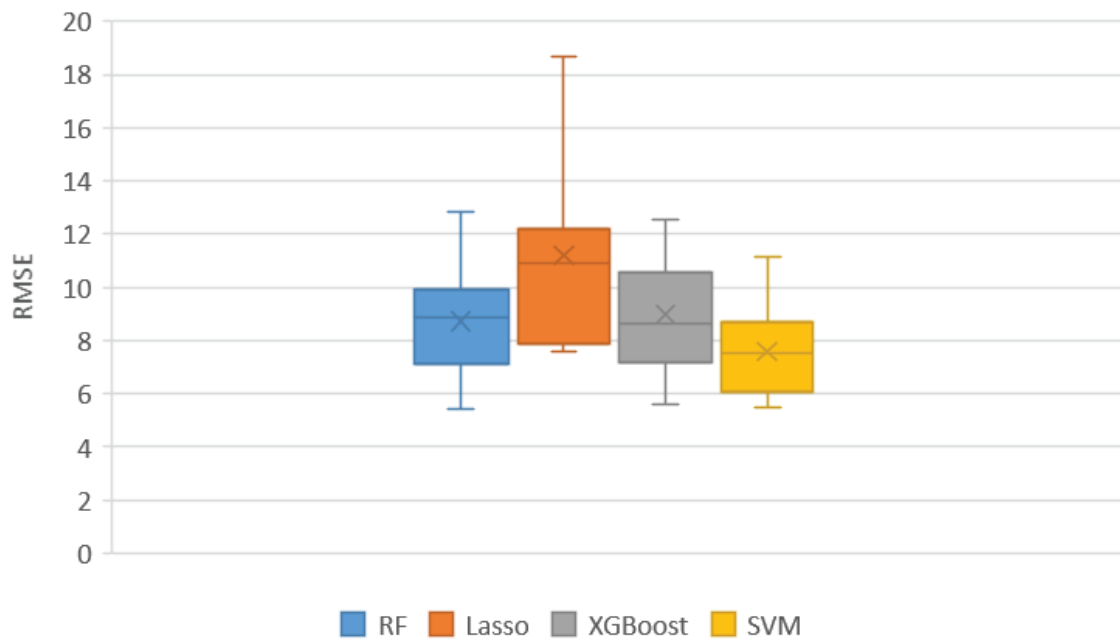
Precision of the forecasts was measured using root-mean-square error (RMSE) metric for each of eleven forecasts made. Importance of each predictor variable was measured using function “varImp” from “caret” library and was reported for the best performing forecast made by the model (based on RMSE) in each year. This means that, for forecasts for one particular year (either 2018 or 2021), only one of eleven forecasts of each machine learning model analysed is in focus. Computational complexity in terms of running time of machine learning models is measured using R function “sys.time”.

In order to test robustness of all machine learning models, forecasting process for both years has been repeated three more times. This approach resulted in four forecasts for each year (2018 and 2021) for every machine learning model except for Lasso regression model which would yield the same result with every repetition due to the lack of stochasticity in the forecast generating process.

3. Findings

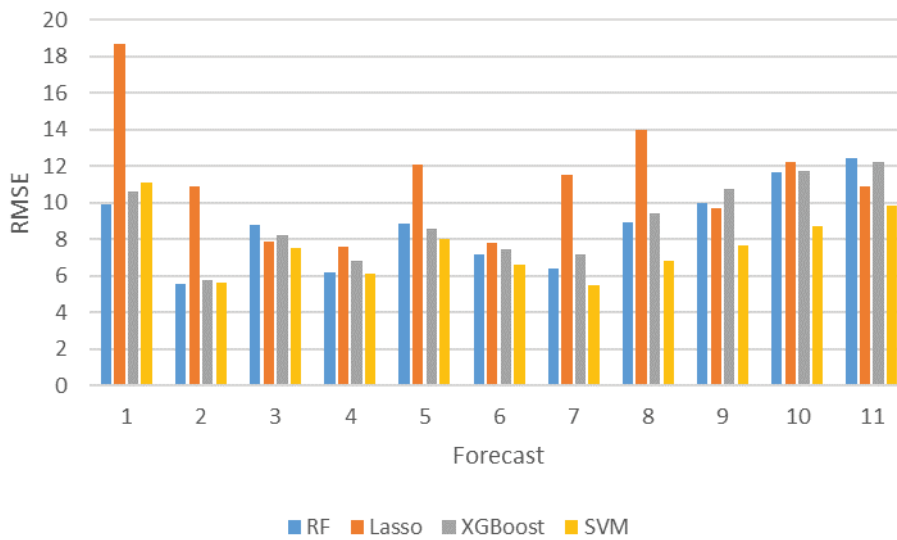
Box plots of RMSEs by model for 2018 forecasts are presented in Figure 1. It can be seen that Lasso regression yields the worst forecasts and SVM (radial) the best. Random Forest and XGBoost exhibited similar performance. RMSE averages by model and by forecasts for 2018 are shown in the Figure 2. The source of SVM (radial)'s outperformance can be traced to the second half of the year, especially to the final three forecasts. Lasso's performance is comparable to the Random Forest's and XGBoost's level except for forecasts 1, 2, 5, 7, and 8. However, for other forecasts Lasso significantly underperforms which results in the significantly worse box plot.

Figure 1: RMSE box plot, 2018 forecasts



Source: Authors

Figure 2: RMSE averages by forecast, 2018



Source: Authors

Although Lasso performed poorly when compared to other analysed methods, it should be noted that it outperformed rival models by a large margin regarding the recorded algorithm running time which is depicted in Table 1. The same can be noted, albeit in the opposite direction regarding the SVM (radial)’s performance. Again, Random Forest and XGBoost are similar in terms of running time, with slight advantage in favour of the XGBoost.

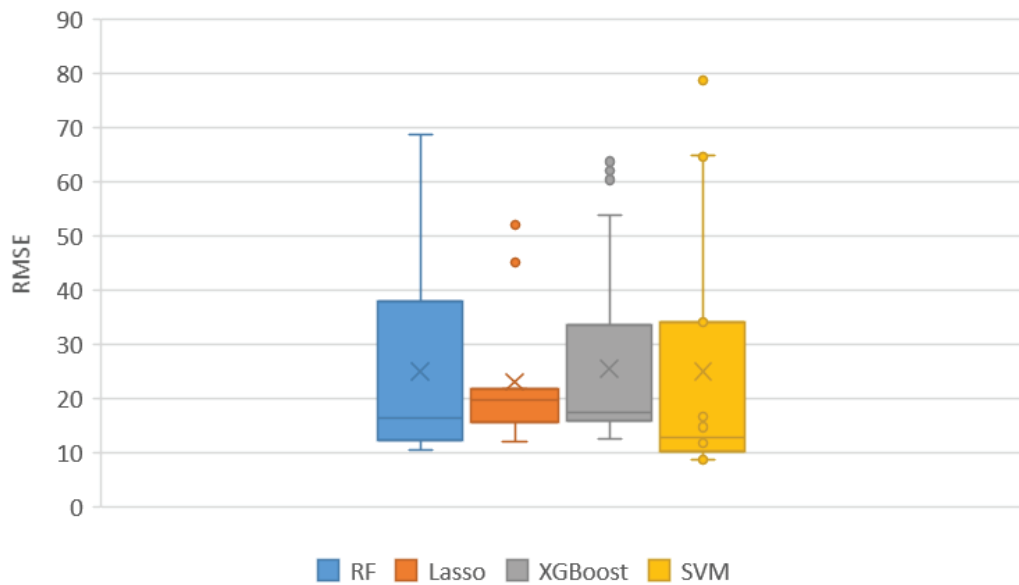
Table 1: Running times in minutes for 2018 forecasts

RF	Lasso	XGBoost	SVM
17.97	0.53	13.77	43.59
16.09	0.53	13.41	45.07
16.85	0.53	13.14	45.47
17.48	0.53	12.96	47.60

Source: Authors

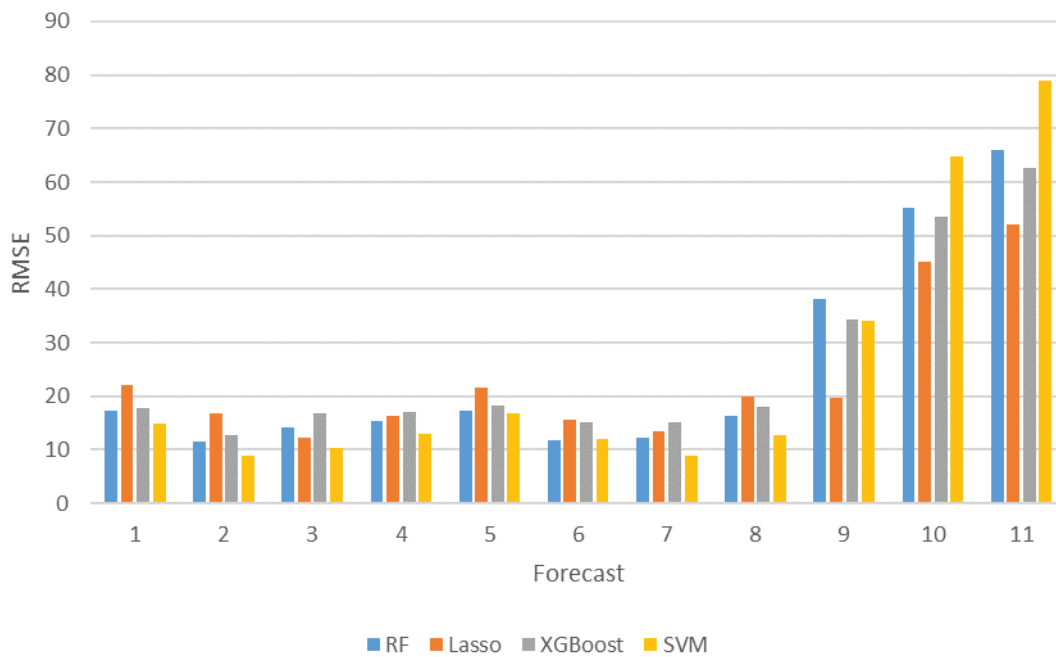
The same analysis has been carried out for 2021 forecasts. Figure 3 depicts RMSE box plots by model. Since in 2021 the prices were significantly more volatile, it is not surprising that the results are different than for 2018. Lasso regression outperforms the other three models which all perform at the same level. Although it has the best box plot and the lowest RMSE average it can be seen that RMSE median for Lasso model is the highest. That can be explained by looking at the Figure 4. Lasso’s outperformance can be traced back to the last three forecasts which were the most volatile and in which it outperformed other three models by a large margin. SVM (radial) would again yield the best performance if those three forecasts were removed from the analysis.

Figure 3: RMSE box plot, 2021 forecasts



Source: Authors

Figure 4: RMSE averages by forecast, 2021



Source: Authors

Table 2 describes running times which are similar to Table 1. Lasso recorded the best running time while SVM (radial) recorded the worst. Running times of Random Forest and XGBoost are similar with XGBoost model performing slightly better.

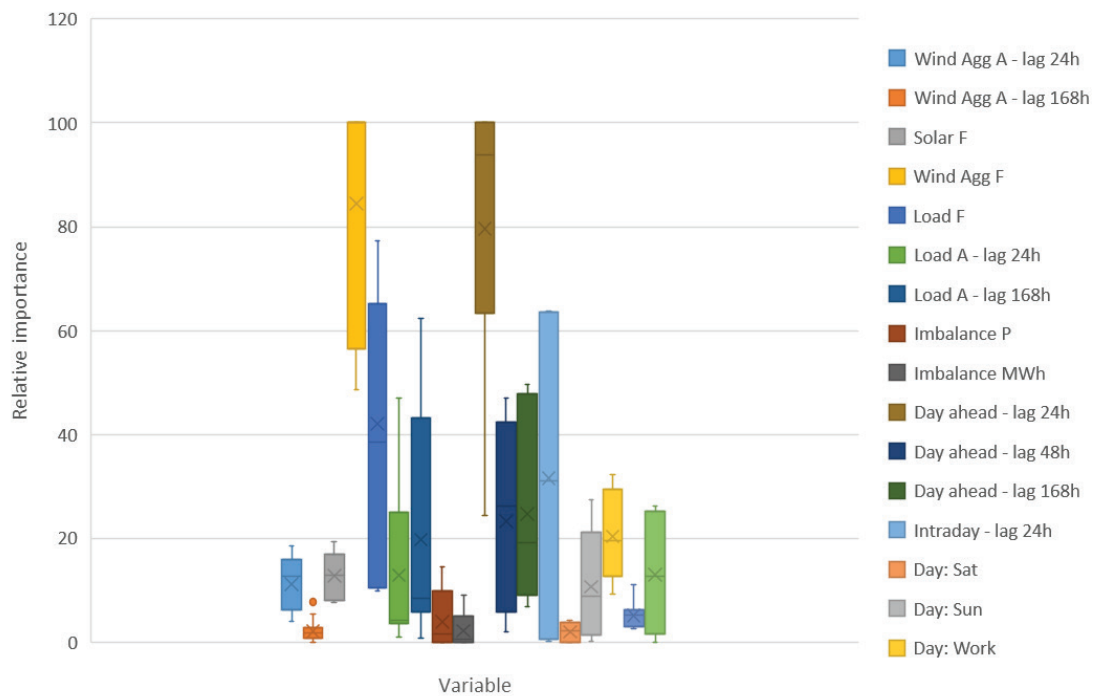
Table 2: Running times in minutes for 2021 forecasts

RF	Lasso	XGBoost	SVMradial
16.71	0.45	13.31	42.82
15.90	0.45	13.51	43.54
15.89	0.45	13.73	42.18
15.77	0.45	13.54	42.22

Source: Authors

Finally, in the Figure 5 fused relative importances for all of the predictor variables and models for both forecast years are depicted. Variables for wind generation forecast and 24 hours lagged day ahead variable are found to be the most important predictor variables across the analysed models. Load forecast completes the top three list. However, it should be noted that load forecast variable has significantly larger importance interquartile range. The same applies to the 24 hours lagged intraday prices for which importance ranges from slightly above 60% to almost negligible value. Low importance of the dummy variables can be explained by the fact that other predictor variables used in the models (i.e. load forecast, wind generation forecast) already contain the information dummy variables hoped to provide.

Figure 5: Fused relative importance by variable



Source: Authors

4. Conclusion

In this paper comparison of forecast accuracy and computational complexity (in terms of software running time) of four machine learning models is carried out. Models are trained on a

one-year long dataset initially corresponding to year 2017. After forecasting a set of day-ahead prices of up to one month models are retrained on an updated dataset by rolling the data sample window one month forward. Accuracy of 88 forecasts (11 forecasts for each model employed totalling 44 forecasts for each year) for the four tested models is being analysed using root-mean-square error metric.

Research findings show that Lasso model seems to produce more accurate forecasts than the other three analysed models in the period of increased volatility (2021) which, combined with the significantly lower computational complexity, adds to its superiority. However, in the less volatile period (2018) accuracy of Lasso model was by far the worst. Support Vector Machine model's forecasts dominated other models in this period but overall performance is overshadowed by the model's computational complexity. Random Forest and XGBoost models seem to exhibit more robust performance with forecast accuracy deteriorating slightly under adverse market conditions while also performing similarly well. Importance analysis points out that wind forecast and 24-hour lagged day-ahead price as the most important external predictor variables, while the load forecast completes the top three list.

Our research findings for the less volatile period seem to corroborate the results reported by Tschora et al. (2022) who also find that SVM outperforms RF model in terms of accuracy. However, these results contradict the finding of Naumzik & Feuerriegel (2020) whose results suggest that Lasso and SVM performed similarly well with RF model trailing slightly. O'Leary et al. (2021) add to already contradicting results by finding that RF model outperforms Lasso and SVR with the latter performing the worst. In their research they also report the software running time with the longest one surprisingly belonging to the RF model, while Lasso being the fastest as expected. Such results warrant additional research in the future which could specifically address the issues which may contribute to the divergence of the results. Our findings regarding the variable importance on the other hand corroborate the findings of Naumzik & Feuerriegel (2020) with wind and load forecasts belonging to top three variables in both papers. Also, both research report the 24-hour lagged day-ahead price in the top five variables. Notable differences are related to the hour dummy variable and solar forecast which were both ranked in the top five by Naumzik & Feuerriegel (2020). In this research however, none of the dummy variables analysed proved relevant along with the solar forecast variable suggesting that their informational value diminished with other variables filling their roles in the forecasting process in this case.

The big limitation of the research is related to the fact that all of the models that were used were not adjusted for different hyperparameters, only their default version was used. This was done in order to minimize possibility of tuning one model significantly better than the others. However, drawback of this approach lies in the fact that some models could improve their accuracy more significantly than the others if hyperparameters were adjusted accordingly. The next limitation refers to the fact that only simpler, frequently used machine learning models were employed. Future research could compare the performance of these models to the more complex, neural network models, especially the Long Short-Term Memory (LSTM) which is often used to forecast time series data such as electricity prices. Lastly, the analysis in this research focused on only one (German) power market. Future research could work with a bigger dataset and compare forecast accuracy and running time of machine learning models across several markets. Also, machine learning models could be rerun more than four times each time the forecast is made statistical testing of differences to provide complete assessment of the validity of results.

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A scientific paper

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ROLE OF PUBLIC INTEGRITY IN FAIR MARKET CONDITIONS

ABSTRACT

Implementation of public integrity is important for the functioning of fair market condition which are crucial elements for the development of a modern social market economy and society. Public integrity represents building various elements of participants' behavior in public institutions and administrative bodies. It aims to assure an equal, fair, and correct relationship with fair and equal conditions for all subjects participating on the market. The main part of the discussion will be dedicated to questioning how different factors of public integrity which shape and define key elements of public authorities, such as education, habituation, and capacity building of public institutions, can support the key ethical pillars of social behavior in public institutions with main elements of social integrity. These aspects are an important part of public integrity, built by true collective action in the public community and implementation of good governance principles as the key for building contemporary administrative and political institutions. Collective action represents the unique and common activity of different participants in society to prevent deviant forms of social behavior in social, economic, and political life, including lack of responsibility in performing public duties. Good governance principles define the regulatory framework for the interaction of different participants in public and private sectors focused on establishing fair market conditions, according to the standards of public integrity.

Key words: *Public Integrity, Public Institutions and Public Bodies, Fair Market Conditions.*

1. Introduction

Public integrity represents one of the main elements of fair market conditions in contemporary society. Without taking into account this aspect of social behaviour which determines and predominantly influences market conditions and terms of business, it is difficult to define a regulatory framework for fair market competition, which is needed for the daily functioning of economic subjects in the market and their interaction with public bodies, institutions and citizens.

Public integrity is something which is at first glance relatively close to all citizens and economic subjects. On the other hand, it is a phenomenon with a specific structure which can be more or less different from society to society and that issue depends on economic, political and historical occasions.

This paper will try to analyse the main elements of public integrity important for establishing fair market conditions and ways of application of this phenomenon to citizens, public servants and economic subjects on the market. These elements have ethical, legal, customary and educational dimensions, with practical question such as the application and adoption of external

rules which define a common ethical and regulatory framework which encompasses public integrity in society, according to social, economic and political circumstances. The second element of public integrity is the possibility of internalisation and achieving external principles of public integrity to citizens which includes an integrative and inclusive approach from citizens and is known as habitualization. According to this process, citizens, public servants and economic subjects adopt new external regulations as their own ethical habitus and usual standard of daily behaviour. External rules and moral principles become part of the moral standards and behaviour of the individuals in society by using of educative, legal and moral tools to stimulate this transformation. Internalization with habitualization of public integrity is equally important as determining and defining a public integrity framework, with legal and ethical principles necessary for the implementation of practical solutions for strengthening public integrity provisions and ethical standards in daily life between citizens, public institutions, and economic subjects. This paper will show how the strengthening of public integrity principles and building of public and administrative institutions and their implementation contribute to the development of fair market conditions.

Public integrity is a basic element for the normal economic development of society as an open and democratic community, with transparent, inclusive, and ethical public institutions. In that sense, public integrity is an important part of social dynamics and contributes to the building of modern public institutions in contemporary states. This is also important in the process of economic, political and social integration in international associations such as the EU or OECD, because it defines possibilities for cooperation and convergence between different countries with similar political, ethical or cultural values. The main aim of the study is how public integrity, which has been internalized in political and administrative institutions, influences fair market conditions of modern democratic states. Research results will provide insight into how elements of public integrity can effectively support fair market conditions according to their implementation in political and administrative institutions and bodies.

The theoretical framework for the definition of public integrity as one of the conditions for fair market relations of a contemporary state is based on the general theory of the system, implemented in social, economic, and political systems. According to this theory, organization of the state is based on political, economic, legal, and social elements which determine institutional framework for the daily functioning of private and public activities in society. Public integrity represents one of the social elements which contributes to economic activities in the community, according to the institutional framework in society. The second part of the theoretical framework is a dialectical approach to public integrity as dynamic between ethical and legal dimensions, where development of ethical elements influences the regulatory framework and implementation of legal provisions, changes the position and role of ethical values in economic, social and political relations.

2. Methodology

The main methodology which will be used in this article is based on an inductive methodological framework with a bottom-up approach in defining public integrity in contemporary society.

An inductive approach assures analysis and description of elements which creates the main pillars of public integrity in contemporary society. These elements are internalization of ethical values and principles in combination with regulatory framework in support of public integrity.

The combination of the ethical and the normative aspects of institutional framework assures independency and a neutral approach in market interaction. The inductive method defines ethical values and legal regulations as main elements which determine public integrity as socio-economic a phenomenon which influence the legal framework of social regulation. This method will also be combined with the deductive method to describe how public integrity influences fair market conditions using various tools such as different forms of collective action or educational approaches in building ethical principles which represent basic elements of public integrity. Together with implementation of the deductive method, the role of public integrity will be described as a part of social regulation, which includes the ethical and normative component. The ethical component describes moral values and ethical principles important for social regulation, and the normative component includes the legal framework as a formal approach in social regulation. The deductive method edits the position of public integrity and specific influence on social, economic and political dynamics in the development of a modern community and reflection on political and administrative institutions.

According to the predicted methodology of the research, the main contribution will be analysis of the role of public integrity in the development and functioning of administrative and political institutions in order to improve market conditions for all economic subjects in fair market competition. This research will show how ethical components of public integrity influence implementation of legal framework, and how legal provisions changes the role and position of ethical values of social, economic and political relations in society.

3. Results

3. 1. Internalization of public integrity in political and administrative institutions

3. 1. 1. Internalization process of ethical values

Internalisation of ethical values and principles in public institutions is a significant process which includes two main steps in application. The first is defining ethical standards and principles that describes public integrity in market conditions (Ruiter, de M., 2019). The definition of ethical standards and principles begins with defining a widely placed framework for discussion on ethical principles and standards in business activities connected with public institutions and government bodies which include questions like forms of bureaucratic deviation, nepotism, favouring some economic subjects and other forms of irregular or unacceptable behaviour (Waldron, J.,1997). For efficient internalization of moral regulations or principles, it is necessary to define their content and determine their elements important for implementation in daily activities (Van Zomeren, M. – Kutlaca, M. – Turner-Zwinkels, F., 2018).

3. 1. 2. Main aspects of public integrity and internalization process of ethical values

The main aspects of public integrity in public administration can be described by relationships of public administration with other subjects in society: the relationship of public institutions with citizens and their legitimate public needs and requests; the relationship with the public community itself, with its unique approach to various problems and challenges; relationship to the working process which include daily activities in managing various public services directly focused on the quality of life, citizens and better conditions for economic subjects in society.

A special relationship is dedicated to various parts of central and local government administration in improving and developing the principles and standards of public integrity (Plant, J. F., 2018). In that sense, ethical regulations can be considered as a reflection of social reality in individual conscience (Huberts, L. W. J. C., 2018). Those principles and standards are determined by implementation and internalization in conscience of public servants. By a true process of application, they result from the external ethical rules and values of servants' internal rules. They adopt those rules as their own moral approach in the daily activity of central and local government organizations and public institutions and they renew their relations to other private and public subjects in society (Anechiarico, F. – Segal, L. 2020).

Ethical rules are a reflection of social reality and represent the standard for the daily activity of public subjects in society (Zacka, B., 2017). They are valid in general, for all unpredictable and specific life situations in community. On the other side, those regulations are especially important for defining moral integrity with the main ethical principles essential for defining optimal and good market conditions. Ethical rules adopted from public servants and embedded into public institutions become an integral part of the moral habitus for societal behaviour of central and local government organizations. They are valid universal, and they are influential not only on the professional position of public servants, but they also shape their private life and manner. This transformation of public servants' demeanour is a process which requires time and patience, with systematic changes in the social, economic, and legal framework of public institutions. Elements which can be detected in stimulation of change in bureaucratic behaviour is usually personal stimulation from public institutions, which correlates with the size and future development of central and local government organizations (Rauh, J., 2018). The second element is personal interest, which can be provided from governmental organizations independently of dynamics of development of central and local government organizations and public institutions. An additional element in changing bureaucratic behaviour can be found in motivation and identification of the servants with the main goals of public institutions, which are dedicated to achieving purposes defined from public policies (Menzel, D. C., 2015). Bureaucratic behaviour is usually defined as the "enemy of individual freedom" and it is the subject of critical evaluation in the context of the economic and social development of the contemporary community. This behaviour is closely connected with political parties and social elites, to assure domination of the political and social oligarchy in political, economic, and social life. The main aspect of negative bureaucratic behaviour is an issue of social regulation with moral rules, where ethical regulation represents a system of social influence which acts on human behaviour with focusing on forms of manner which are acceptable and ethically valuable (Vasconcellos Leão Lyrio, M. – João Lunkes, R. – Teresa Castelló Taliani, E., 2018). Morality represents a socially regulative system which acts similarly on human behaviour as legal regulation or social convention. In that sense, morality regulates relations between the people and regulates mutual relations in society (Plaček, M – Ochrana, F. – Vacekova, G. – Langr, I – Puček, M., 2022). On the other hand, society is also a source of moral regulation and moral activating mechanisms. Specific elements of morality are ethical values and rules. Ethical values are fundamental part of social regulation. Internalization of ethical values represents from the individuals an important part in social regulation, where external ethical values and social regulations became internal part of individual behaviour. Individuals adopt moral values and ethical principles and applying them in daily life as their own ethical standard of behaviour. This aspect of moral influence is important in formatting of public integrity in public institutions and central and local government organizations (Menzel, D. C., 2015). There are different tools for application of external ethical values in process of internalisation such as grants, prizes, penalties or approvals. Important part is building of public integrity true formal and informal education of public servants and other participant who acting

in various public institutions (Lewis, C. W. – Nesselroth, S. H., 2014). Internalization of ethical values with education and other forms of influence create expectations to the individuals and participants in society.

3. 1. 3. Social regulation as an alternative form in internalization of ethical values

As complementary fields of moral regulation can be recognized social regulation with law and social regulation with social convention. Social regulation determined by legal rules is also efficient way for standardization procedure of public institutions and public utilities in interaction with private subjects which acting in market conditions (Ulman, S. R., 2015). The main problem in social regulation by law can be detected in the vagueness of norms and unenforceability of sanctions, which depends on specific situations. On the other side, social convention represents valid and efficient form for social regulation, but only in regular situations, which are common in daily situations. But this type of social regulation has problematic efficiency in internalization standards of public integrity. Main problem is lack of efficient sanctions, because moral or legal sanctions create specific social pressure on individuals, institutions and utilities according to present and prevailed standards of public integrity. Internalization and self-adoption of public integrity standards and principles depends on intensity of social pressure and wiliness to adopt external values as their own moral habits. Because of that, role of formal or informal features of education, adoption and acceptance of new ethical standards and values true training and schooling is important part in strengthening public integrity.

3.2. Legal forms of collective action to support public integrity

Collective action (Hardin, R., 1982) against corruption represents a unique and common activity of different actors in society to prevent deviant forms of social behaviour¹ in social, economic and political life, such as corruption, nepotism and lack of responsibility in acting out public duties.² It also includes the fight against all other forms of deviant behaviour in public institutions, political and administrative bodies and political organizations directed to prevent trading of public interest and favouring of all kinds of influence (Ostrom, E., 2021).

Collective action is usually inspired with mentioning that corruption and other types of deviant behaviour and functioning of public institutions can produce harmful effects in the long term. In that sense, collective action is focused to stimulate, encourage and support activity and behaviours by adoption of standards and ethical principles in public institutions and beyond (Olson, M., 2002). These principles and standards aim to introduce and inaugurate fair competition rules on the market and guarantee equal market access with fair possible extent to all market competitors, according to the regulatory framework, which defines market conditions and position of all actors in competition process (North, D. C., 1999).

There are existing several forms and types of collective action, with the main purpose focused on prevention of corruptive or irregular behaviour on the market. Those forms are oriented towards describing and regulating relations between political and administrative bodies and public institutions with private subjects, which deliver various goods and services. Some of

¹ Collective action represents one of the social doctrines and theoretical approach how people and community create decisions which directly affect to the collective life of the community and position of individuals in the community. There are many different aspects of collective action and theoretical approach in this matter (Hardin, R., 1982).

² Daily activities of social institutions are directly connected with economic dynamics in society. Negative effects caused by social phenomena directly influence on economic processes and negative economic dynamics has significant influence on social institutions (Schumpeter, J., 1914).

those forms regulate relations which are usually connected with public procurement. Other forms are more focused on establishing equal competitive conditions on the market for economic subjects to optimize their activity in general and business activity. The relationship between public and private actors on the market are usually defined by expectation from the private subjects from public sector institutions, and behaviour of public bodies and institutions, which create regulatory framework for market conditions (De Bruycker, I. – Berkhout, J. – Hanegraaff, M., 2019). In that sense, the creation of regulatory framework has two separate dimensions: firstly, which represent the shaping of regulations and formal legal procedure for private and public sector acting; and secondly, which defines interpretation of formal legal procedure and acting between various subjects on market from administrative and judicial institutions (Holzer, M., 2022).

3. 2. 1. Legal documents as forms of collective action in protecting public integrity

Documents which are usually described forms of collective action are statements against corruption or negative bureaucratic behaviour and declarations against corruption and other forms of negative bureaucratic behaviour.³ Statements against corruption comprise a normative act which includes the legal and ethical obligation of subjects in mutual relationships to apply principles and rules that exclude any kind of behaviour that can be characterized as favouritism which is established on nepotism or corruptive and bureaucratic forms of acting between the subjects in business relations. Legal responsibilities from this document can be applied in situation where the possibility for implementation of legal sanctions is defined. Ethical regulations are usually connected with legal regulations to assure prevention from corruptive or bureaucratic behaviour. Declaration against corruption is a similar document which determines forms of subject acting in business relations and describes limits of a regulatory framework which is important for establishing fair market conditions. This document includes detailed normative and ethical legal provisions important for the prevention of corruption and fair market environment, which more precisely determines market conditions and participation of economic subjects in daily economic activity. Declaration against corruption is equally an ethical and legal document, and it describes and explains the focus on good practices in procedures between public and private subjects in economic relations.

Other forms of collective action include statements condemning corruption, integrity pact (Transparency International, 2002), initiative directed and focused on developing common standards and principles of public integrity and certification of business coalition or labelling (Makowski, G., 2021). Statements condemning corruption are oriented towards ethical aspects in the fight against corruption, with building and strengthening moral principles to establish public integrity in relations between economic subjects and public institutions. It is important to implement content from the statement on internal relations in governmental bodies and public institutions as a true process of internalisation and habituation. Implementation is usually connected with the additional process of continuing education which includes teaching lessons, workshops, etc. (Huberts, L. – Kaptein, M. – de Koning, B., 2021). Internalisation and habituation need to assure application of institutional behaviour which will be integral part of daily acting in interaction between economic subjects and governmental institutions (Heckler, N. – Ronquillo, J. C., 2020). Integrity pact defines measures which will be considered to assure

³ Bureaucratic behaviour can be also positive, which includes a systematic, neutral and objective approach to all subjects in economic life and society, without favouritism of any kind. This type of positive behaviour is usually connected with comprehension of bureaucracy as one of the legitimate administrative approach in acting of public authorities, according to Weberian understanding of public administration, which include some specific elements of administrative organizations with bureaucratic structure (Weber, M., 1919).

public integrity in relations between public institutions and governmental bodies and economic subjects (Water Integrity Network – Transparency International, 2010).

Statement against corruption defines main problems caused by corruption, with condemnation of its forms and formative manifestations in economic activities according to daily situations and occasions (Kolthoff, E. – Huberts, L. – van der Heuvel, 2007). This type of collective acting is focusing on control of prohibited or irregular behaviour of different actors on the market, and usually presents voluntary agreement between public and private subjects in society aims to prevent corruption and other parts of economic deviation or distortion of market conditions.

An integrity pact is a similar form of collective action. The difference is in the formal shape of this agreement between various subjects in collective action, focused on creating prerequisites for the inauguration of public integrity. Integrity pact is always focused on positive values that shape market conditions (Prateppornnarong, D., 2021). Positive values of market conditions define acceptable forms of market participants acting, which is important for establishing and maintaining public integrity. In that sense, integrity pacts always take a form of formal agreement between sides that defines obligations and rights of different subjects in agreement according to regulatory framework which stipulate public procurement contracts. Another difference is when this type of agreement is a part of external control and monitoring. Financing these agreements is usually covered by sharing costs between different parties such as company tenderers, allocated project funds or contracting authority itself.

The third form is developing common standards and principles based on ethical grounds, which are usually known as “standard setting initiative”. This acting can be initiated and introduced by group of participants who wish to combat their activity against corruption true combining of approaches in promoting of transparency and public integrity (Khadaroo, M. I., 2005). Developing common standards and initiatives are important measure of market participants to promote and encourage public institutions and government do develop ethical and legal framework against corruption, with elements which support public integrity and transparency as a main form of participation in economic activities (Ball, C., 2014).

The fourth type of collective action is labelling or certifying, which means that different participants of business coalition share the main ethical principles and certain ethical standards in business behaviour. Deviation and aberration of those standards leads to the common approach of members which includes the elementary base for complying and disputing market procedures and decisions which are opposite to embedded ethical values according to these principles (Camerer, M. I., 2006). Acting and functioning of market participants included in this agreement must be compatible with a common sense of the principles and ethical standards incorporated in certification business coalition. Common sense of the moral principles and ethical standards represents basis for unification and standardization of the rules that defined list of acceptable behaviours according to certification of public integrity values or moral standards in business activities (Jagers, S.C., Haring, N., Löfgren, Å. et al., 2020).

3.3. Education for public integrity as useful tool for the fight against corruption

There are many aspects important in collective action against corruption, which includes education of citizens, public servants and officials in the creation and building of public integrity. That includes multiple forms of behaviours in order to establish a social and economic framework important in combatting different aspects of negative social behaviours, which

includes corruption, nepotism, favouritism and other aspects of negative bureaucratic functioning (Menzel, D. C., 2009b).

The building of public integrity can be done through various forms of education, training or schooling (Giersch, J., 2009). These tools are an important part for the prevention of corruption and represent a kind of specific dam for many deviant behaviours and unacceptable situations in the functioning of public institutions and bodies (Hauser, C., 2019). Education for public integrity includes an educational process in three directions: building administrative, political and economic system in a way to stop or reduce and prevent corruptive behaviour in society, creating social conditions which makes corruption unacceptable to citizens, and introducing accountability for participants' behaviour in the community. Implementation and internalisation of ethical values and legal accountability in all three areas of public integrity is important not only for strengthening moral principles in society and strengthening social institutions, but is more important for economic productivity, efficiency of public sector institutions and public bodies, and for developing social and economic inclusion (McCourt, W., 2007).

For new social behaviour it is important to build and apply new ethical principles and social standards important for public administration and political communication which includes the entire political, administrative, and judicial system. The main element of this new approach in renewing social standards and principles in the community is habitualization or habituation. Habitualization is a term which determines the way of implementing behaviour based on ethical standards as one's own way of acting and functioning in the building of administrative culture. Habitualization of ethical principles of public servants can be an important factor in preventing deviation in the functioning of public administration (Van Montfort, A. – Beck, L. – Twijnstra, A., 2013). In that sense, habitualization is an essential part of public integrity. Without habitualization, there cannot be effective education for public administration which can assure and guarantee public integrity in public administration and administrative and political institutions (Streib, G. – Rivera, M., 2014). Habitualization, as a first element in internalization of acceptable social behaviour, lays down ethical principles and values and represents one of the forms of social regulation of public integrity.

The second aspect in the internalization of public integrity is the adoption of rules and principles which are established by implementing the main legal standards as a group of principles nominally called Legal State (which is in central European countries is usually well known as *Rechtstaat* as a German term for Legal State). These legal standards and ethical principles represent and define pillars of contemporary state, additionally regulated by the rules and principles which determine human and citizens' rights, according to social and economic occasions in society. Obligation and strength of these two aspects depends on social pressure which results in efficiency of ethical and legal norms and principles in maintaining social regulation.

Capacity building of public institutions to adopt ethical principles can be recognized as an important element of public integrity which supports the key ethical pillars of social structure with the main elements of social integrity (Van Steden, R., 2020). Capacity building of public institutions needs to assure a transparent and equal approach and relations to all subjects according to the principles and values of public integrity, which are usual under market conditions (Van Steden, R., 2020). Capacity building of public institutions needs to open the possibility for efficient implementation of social regulation in the process of internalization of values and principles which define public integrity (Gannett, A., 2015). It is especially

important because of the continuity of social, political and economic changes, which stipulates the need for the adjustment of an ethical and moral framework of public integrity to new occasions in society and adaptation of market conditions to refreshed standards of public integrity.

Two contributions for strengthening public integrity are better educative curriculum of public servants and developing citizen's participation in administration making processes. Better educative curriculum includes building of ethical and social framework of behaviour with legal supports which can provide better surroundings for public integrity. Developing citizens' participation in decision making processes include control in the enactment of administrative decisions in public authorities, which is also crucial in supporting public integrity (Hoekstra, A., 2022). Citizen participations have different forms of enactment such as public meetings, workshops, social networks and petitions.

As a part of civil servant education, facilitation of various seminars and teaching lessons represent tools for preparing students for different situations in daily life, which can be important for the implementation of public integrity (Pallai, K – Gregor, A., 2016). It is important to assure opportunities for students to express their opinions and thinking about corruption, nepotism and other form of unacceptable behaviour. That is important not only for the students whose formal education covers interaction with political and administrative institutions, such as economy, law, public administration or other social sciences. It is also important for the students studying STEM area of science, as an additional part necessary in their common education to achieve basic knowledge based on an ethical and legal framework which defines public integrity and interaction with public institutions. In that sense, the voice of students and future public servants is important for internalisation of public integrity in the daily functioning of public administration and political institutions (Bright, L., 2016).

Results of civic education programs suggest that education for public integrity can be an integral part in the fight against corruption and other forms of bureaucratic deviation. It is also important to remember that lessons for public integrity cannot be visible immediately (OECD, 2020). It is usually a mid-term or long-term process, which can be visible by truly systematically collecting and analysing data, which can show the influence of education programs on the adoption of public integrity. Intensity of internalisation of public integrity in public institutions is in closely connection with the application of formal or informal education lessons in order to implement ethical standards and legal principles important for developing conditions for supporting public integrity and an environment for preventing bureaucratic and other forms of unacceptable social behaviour (Bogumil, J. – Werner, J., 2020).

Education for public integrity is a dual process which includes educative lessons of ethical and legal principles for developing public integrity, according to the dominant public interest of the society⁴, for students and young practitioners, and continuing education for employees in political and administrative institution. Dominant public interest in society can be different from society to society and depend on social culture ((Menzel, D. C., 2009a). According to the dominant public interests in society, public integrity has some specific modification which can be different from country to country. The first part of the dual education process is formal education for the implementation and internalization of public integrity principles in social

⁴ Public interest is term which defines interests of the social community and common interest of the people who live in some society. Public interests in society are different and can be mutually opposite. Public interests in some society also depends on culture, social, economic and political occasions etc., and can be different in cooperation between different societies. Public interest is not something which is fixed and mutable and depends on social dynamic and economic and political development (Downs, A., 1962).

institutions, organized as a usual element of educational processes in schools, faculties and universities. This education is formatted as part of the educational curriculum. The second part of the dual education process is organized as a social support to strength public integrity principles and ethical values and independence of public institutions in society from external pressures of various subjects, led by partial interests. Education for public integrity, as part of the formal educational process is an important element in developing professional ethical standards of future employees and can be an efficient tool for internalizing public integrity principals of behaviours (Munro, C. – Kirya, M., 2020). As a formal element of professional education, it prevents further deviation of social behaviour of the subjects which are not in correlation with public integrity principles in fair market conditions (Von Groddeck, V., 2014). According to social, economic and political changes in society, the second part of the dual education process is important to develop continuing education with the aim to harmonize principles of public integrity in society with standardisation of the behaviour of employees and other subjects (citizens and politicians) which are included in interaction with public institutions. Continuing education for public integrity is a permanent educative process which includes different subjects with various interests, but with a common purpose: developing and strengthening public integrity principles in daily activities to assure fair market conditions.

3.4. Legal vs. ethical approach in social regulation

Internalization of public integrity principles includes ethical standards and principles with values according to public interest in society (Meyer, M., 2020). The technical aspect of internalization represents the application of a legal framework with integrated principles of public integrity, according to public interest (Klenk, T., 2019). In that sense, ethical standards represent support to self-correction and self-regulation of the subjects according to the public integrity principles and main public interests in society, and normative rules and principles additionally assure implementation of public integrity principles formatted according to ethical values defined and clearly determined with public interest in society (OECD: Public Integrity, 2023). The ethical and legal approach can be described in mutual dynamics, with the implementation of the dialectic method to describe relations between ethical values and normative principles defined by legal framework (The Stanford Encyclopaedia of Philosophy: Hegel's Dialectics, 2020). Legal aspects of social regulation generate ethical values and moral principles. On the other side, implementation of ethical values and moral principles leads in changing the normative framework in the process of social regulation in contemporary societies (Horst, F., 2000). Public integrity represents an integrative approach in the dynamics of social regulation, with implementation of ethical values and legal elements, where moral values influence legal aspects, and legal principles establishing new or changing present moral values and ethical standards of public institutions important for social, economic, political and cultural development of society. Public integrity acts through two main components: legal and ethical, where the ethical component impacts on regulatory framework and changing positive legal provisions. On the other side, establishing or changing legal regulation changes ethical positions and influences moral values in society, which includes new economic and political conditions.

4. Discussion

Public integrity represents one of the key elements for development of fair market conditions in contemporary society. On the one hand, this phenomenon influences the social, political and economic context in society and assures fair market relations and equal market competitions between various market subjects. It forms various conditions necessary for the development of

a modern and independent economic system. On the other hand, the development of public integrity is a complex question, which depends on various elements, such as education, social inclusion, present social conventions and standards of decent and ordinary behaviour in society, ethical values with moral principles and a legal framework which regulates, prescribed and prohibited social relations in the community and creates legal forms of various social institutions. Without a coherent approach it is difficult to define and determine elements which describe public integrity.

Public integrity depends on predominant ethical values and moral rules, which represent the acceptable social basis for regulation of public integrity in society. To implement those rules, people must achieve and apply their content as their own principles in daily functioning and living. For implementation, it is necessary to develop tools and methods for application. The main tools form implementation and internalization of ethical principles which define public integrity use social conventions, build a legal framework and organize formal and informal educational processes. Organization of these tools is separate and varies from situation to situation. This paper tries to present how those tools can be used in building public integrity in contextual development of fair market conditions.

Elements which create public integrity are not static, and they are dynamic with adoption of changes according to the development of society. Other important fact is convergence and harmonization of public integrity. Some ethical and legal standards which characterized public integrity in one social community can be different than in some other community.⁵ It is important to find a common denominator, which will connect and unify different practices in various countries.

Public integrity is a dynamic phenomenon and depends on social and economic occasions. Development of public integrity depends on social support, true efficient implementation and application of social tools such as ethical values and legal provisions. The second part of public integrity development consists of formal and informal ways of education which is important for internalization of ethical values which define public integrity, and the habitualization process important for taking on external ethical values as their own personal way of behaviour, acting and living. Without efficient internalisation, there is no strengthening of public integrity, which is important for the development of satisfactory market conditions. Canalising of norms and values which create public integrity, true internalization and the habitualization process is an important element in preventing bureaucratic deviation and other forms of unacceptable behaviour. In that sense, it is also equally important to develop and adopt social tools for strengthening public integrity and educational and upbringing tools for the internalization and habitualization process important for achievement of public integrity standards in community. Important aspects of the habitualization process are dialectic between ethical and legal components of public integrity, where the influence of ethical values and moral standards creates conditions for the development of regulatory framework. At the same time, according to dialectical dynamics, implementation of new legal provisions with development of legal standards lead to new economic, political and administrative conditions and changes existing ethical values, and adequately influences economic, political and social relations in society.

⁵ For example, the issue of the interest and interest rates can be differently regulated in some islamic countries in comparison with European and anglo-american countries, which depends on different ethical values and approach to this question.

5. Conclusion

Public integrity is represented by a social phenomenon which defines an ethical and legal framework for accepted behaviour of citizens in public institutions, civic society and economic utilities in a community.

The ethical and legal framework of public integrity depends on sociological, cultural, economic and political circumstances in society. Different countries and different communities can have differences in understanding the term public integrity. For describing and analysing this phenomenon, it is necessary to define a convergent approach, with common characteristics of behaviour according to public integrity principles and standards in the activities of public institutions, citizens and economic subjects.

A convergent approach to public integrity includes internalization of ethical aspects, regulation of legal principles in a coherent legal framework and educative process with habitualization for strengthening and achieving ethical values which define the standards of public integrity. The dynamics of this process depends on the dialectics between specific components of public integrity.

Two main components define public integrity: legality, which uses standard legal tools for the implementation of public integrity principles and morality, which uses ethical tools for the standardization of public integrity values in society. The ethical dimension of public integrity assures the development of a standard legal framework of public integrity. On the other hand, a standard legal framework of public integrity assures better internalization and application of public integrity ethical values, which contributes to the standardization of public integrity principals and rules. With standardisation of the values and principles of public integrity, a true legal and ethical framework, and public integrity become visible, transparent and measurable. That leads to the possibility of transparent use of this phenomenon to prevent and stop unacceptable social behaviour in the community, true dialectic dynamics, where changing of legal provisions influences ethical values and moral standards. The introducing of new ethical values impacts on changing the existing legal framework.

Regulation of public integrity value standards and legal principles is an important element for developing institutional capacity in central and local government bodies and institutions. The second important element is strengthening the resilience of public institutions against corruptive or bureaucratic behaviour, true standardisation of public integrity principles and values which are incorporated in public communication and interaction between various subjects in economic and social relations in community life. Through this regulation, public integrity can be a dam against different forms of unacceptable behaviour and contribute to the transparent and open operation of public institutions in their interaction with other parts of the community. This approach assures support for establishing and developing fair market conditions in the business community and contributes to the acceleration of economic and developmental processes in society.

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THE ROLE OF ICT IN MAINTAINING THE OPERATION OF HOSPITALS DURING THE COVID-19 PANDEMIC

ABSTRACT

The COVID-19 pandemic poses a serious challenge to the sustainability of the hospital system. The challenge is how to control the virus so that it does not seriously affect the operations of the hospital. The aim of the paper is to show how to achieve the sustainability of the hospital's operations with the help of the application of information and communication technology (ICT). The conducted research consists of monitoring key economic indicators of business, and the application of "anti-covid" ICT solutions in the period 2020-2022. The reference point was the operation of the hospital in the first 10 months, pre-pandemic 2019. The results were compared with 10 months in the years of the pandemic. In addition to the comparison of economic indicators, a survey was also conducted among employees, which confirmed the facts obtained by monitoring economic indicators and monitoring the use of ICT solutions in the context of patient infection control. The research methodology consisted of a survey conducted by means of a questionnaire, the implementation of a case study in the segment of ICT application, and the analysis of the collected results. The research results clearly show that 2020 was the most difficult year (least use of ICT solutions), 2021 was the year of adjustment (business results better, the role of ICT greater), and 2022 is the year of consolidation, business results almost at the level of 2019, ICT solutions fully functional).

Key words: *COVID-19, economic indicators, information and communication technology, key performance indicators.*

1. Introduction

The COVID-19 pandemic had a significant impact on the operations of hospital institutions. These included an increase in the number of patients with COVID-19, capacity constraints, the need for additional protective equipment and personnel, and an increase in the cost of doing business. Hospitals have also had to adapt their procedures and protocols to prevent the spread of the virus, leading to restrictions on patient visits and the diversion of some non-COVID patients to other health facilities. All this led to difficulties in the financial operations of hospital institutions.

The challenge is how to achieve the sustainability of the hospital's operations. This paper will present one of the ways, using the monitoring of basic economic indicators and the application of information and communication technology. Research was conducted, which consists of monitoring key economic indicators of business, and analysis of the application of "anti-covid" ICT solutions in the period 2020-2022. The reference point was the operation of the hospital in the first 10 months, pre-pandemic 2019. The results were compared with 10 months in the years of the pandemic. In addition to the comparison of economic indicators, a survey was also conducted among employees, which confirmed the facts obtained by

monitoring economic indicators and monitoring the use of ICT solutions in the context of patient infection control. The research methodology consisted of a survey conducted by means of a questionnaire, the implementation of a case study in the segment of ICT application, and the analysis of the collected results. The research results clearly show that 2020 was the most difficult year (least use of ICT solutions), 2021 was the year of adjustment (business results better, the role of ICT greater), and 2022 is the year of consolidation, business results almost at the level of 2019, ICT solutions fully functional). At the beginning, an overview of the area was given.

2. Literature review

There have been a number of surveys conducted that have looked at the use of ICT in healthcare in the context of the COVID-19 pandemic (Yang S. et al., 2020), (Silvera, G. A. et al., 2021), (Suresh, M., Roobaswathiny et. al., 2021). Here are a few examples:

- A survey (HIMSS, 2022) conducted by the Healthcare Information and Management Systems Society (HIMSS) found that 92% of healthcare organizations in the US had adopted telehealth services as a result of the pandemic, with the majority of these organizations reporting that they plan to continue using telehealth services in the future. The survey also found that the most common telehealth services being used were virtual visits (95%), remote monitoring (78%), and virtual consultations (67%).
- A survey (EU Commission Survey, 2011) conducted by the European Commission found that the use of telemedicine in the EU increased by around 140% as a result of the pandemic. The survey also found that the most common telemedicine services being used were video consultations (82%), remote monitoring (70%), and e-prescriptions (68%).
- A survey (WHO, 2020) conducted by the World Health Organization (WHO) found that the number of telemedicine consultations increased by around 69% globally in the first half of 2020, as compared to the same period in 2019. The survey also found that the most common telemedicine services being used were video consultations (78%), remote monitoring (42%), and e-prescriptions (34%).
- A survey (Qianqian Ma et al., 2022) conducted by the National Bureau of Statistics in China found that the use of telemedicine in China increased by around 30% as a result of the pandemic. The survey also found that the most common telemedicine services being used were video consultations (82%), remote monitoring (70%), and e-prescriptions (68%).
- "The Role of ICT in the COVID-19 Pandemic" (Rachmawati, R. et. al., 2021) looks at how ICT has been used in various areas such as telemedicine, telehealth, tele-education, and e-commerce during the pandemic. The paper also examines the challenges and opportunities associated with the use of ICT during the pandemic, and provide recommendations for how ICT can be used to support public health and economic recovery in the future.
- "ICT for COVID-19: A review of the literature" (Maspero, C. et. al., 2020), provides an overview of the different ways in which ICT has been used in the fight against COVID-19, including in areas such as telemedicine, telehealth, remote monitoring, and contact tracing. The paper also examines the challenges and limitations associated with the use of ICT during the pandemic, and provide recommendations for how ICT can be used more effectively in the future.

- "The use of ICT in response to COVID-19: A systematic review" (Alshammari A. A. et. al., 2021) by A. A. Alshammari and M. A. Alshammari, published in the Journal of Medical Systems, provides a systematic review of the literature on the use of ICT during the COVID-19 pandemic. The paper examines the different ways in which ICT has been used, including in areas such as telemedicine, telehealth, tele-education, and e-commerce. The paper also provides an overview of the benefits, challenges, and future directions associated with the use of ICT during the pandemic.

These are just a few examples of the many scientific papers that have been published on the topic of ICT and the COVID-19 pandemic, but the papers above show some of the main ways in which ICT has been used in the pandemic context. Overall, it seems that ICT has played an important role in supporting the healthcare system and the economy during the pandemic, but there have also been challenges and limitations associated with the use of ICT.

3. Methods

During the research, the methods of studying available sources related to the topic were used. The analysis of the available sources and the synthesis of the obtained knowledge led to certain findings, which are listed below. In addition to the study of available sources, a method of exploring real example was carried out, which observed the operations of a general hospital during the pandemic, as well as the application of information and communication solutions to support operations. The benchmarking method was used to compare economic indicators over the years. The results obtained during the case study were confirmed by the results of the employee survey conducted through a questionnaire. Using the method of generalization, the results obtained from the sample of one hospital were generalized to the entire system.

4. Research

In this chapter, the results of the study of the subject literature and results of exploring the example of the General Hospital "Dr. Tomislav Bardek" Koprivnica will be presented.

4.1. Results of the literature study

The following will present the results of the study of the literature in the subject area, which relate to the economic aspect and the information and communication aspect of the business of general hospitals during the pandemic.

The use of information and communication technology (ICT) services has been crucial in helping businesses and individuals adapt to the economic disruption caused by the COVID-19 pandemic. Remote work, online education, e-commerce, and telemedicine have all been made possible by ICT services, allowing for continuity of operations and economic activity in the face of physical distancing measures and lockdowns. Additionally, the increased reliance on ICT services has led to increased demand for these services and related products and infrastructure, which in turn can boost economic indicators such as employment, productivity, and GDP.

Information and Communication Technologies (ICT) have played a crucial role in reducing costs for hospitals during the COVID-19 pandemic (Squire M. M., 2021). Some examples include:

- Telemedicine: Allows patients to receive medical consultations and check-ups remotely, reducing the need for in-person visits and the costs associated with them. Many hospitals have implemented virtual consultations and remote monitoring to reduce the risk of exposure to COVID-19 and reduce the burden on physical facilities.
- Electronic Health Records (EHRs): Allows for the digitization of patient records, making it easier for healthcare providers to access and share information, reducing the need for duplicate tests and procedures. Hospitals have been using electronic health records (EHRs) more extensively to improve the speed and accuracy of data collection and reduce the risk of transmission of COVID-19.
- Remote monitoring: Allows for patients to be monitored remotely using devices such as smart watches or wearable devices, reducing the need for hospital visits. Hospitals have been using remote monitoring devices such as wearables to keep track of patients' vital signs and alert healthcare providers to potential complications.
- Automation of certain processes: Robotics and artificial intelligence can be used to automate certain tasks, such as data entry or triaging of patients. Hospitals have been using ICT to automate the process of contact tracing, allowing them to quickly identify and isolate individuals who may have been exposed to COVID-19.
- Robotics: Some hospitals have been using robots to perform routine tasks such as transporting samples or medicines, reducing the risk of exposure for healthcare workers.
- Virtual training: Hospitals have been using virtual reality and other digital technologies to train healthcare workers on how to safely care for COVID-19 patients.
- Video conferencing: Hospitals have been using video conferencing tools to facilitate communication and collaboration between healthcare providers, including between facilities.

According to a report by the World Health Organization, telemedicine usage increased by as much as 69% during the pandemic. A survey conducted by the American Medical Association found that during the pandemic, 92% of physicians have used telehealth to interact with patients. The U.S. Centers for Disease Control and Prevention (CDC) reported that the use of virtual care options, such as telehealth, has significantly increased during the pandemic. The American Hospital Association (AHA) reported that nearly all hospitals in the United States have used telehealth in some way during the COVID-19 pandemic. These are just a few examples of the many ways in which ICT has been used in hospitals during the pandemic. It's important to note that the use of ICT in healthcare is constantly evolving, and more data and statistics on the subject might be available by consulting specialized reports and studies.

Research has shown (Suresh, M. et. al., 2021), (Vrontis, D., 2021) that the COVID-19 pandemic has had a significant impact on hospital performance. Hospitals have seen an increase in the number of patients requiring care, leading to overcrowding and strain on resources. Emergency department visits and inpatient admissions have increased, and elective procedures have been delayed or cancelled. Many hospitals have also faced staff shortages due to illness or quarantine requirements. Additionally, the pandemic has led to financial challenges for hospitals, including decreased revenue from cancelled procedures and increased expenses for personal protective equipment and other supplies. Overall, the COVID-19 pandemic has greatly impacted the ability of hospitals to provide care and maintain financial stability.

There are several studies (Cherrez-Ojeda, I., 2020), (Day, A., 2010), (Najeeb, A. Z., 2013) that have examined the relationship between the increasing use of Information and

Communication Technology (ICT) and the efficiency of hospital performance. One study published in the Journal of Medical Systems found that the use of electronic health records (EHRs) was associated with improved quality of care, increased patient safety, and increased efficiency in hospitals. Another study published in the Journal of Medical Internet Research found that telemedicine can help to reduce the number of in-person visits to hospitals and clinics, thus reducing the risk of COVID-19 transmission and improving efficiency.

A study published in Health Affairs found that the widespread adoption of health information technology (HIT) was associated with improvements in the quality and safety of care, as well as increased efficiency and productivity. A study published in the Journal of Medical Systems found that the use of telemedicine in intensive care units (ICUs) can help to improve the efficiency and quality of care for critically ill patients. Finally, a study published in the Journal of the American Medical Informatics Association, found that the use of ICT in hospitals is associated with increased efficiency and productivity, but also identified the need for proper training, support and user-centered design to ensure effective implementation. It's worth noting that these studies suggest that ICT can help to improve the efficiency of hospital performance, but also highlights that proper implementation and use of the technology is crucial to achieve that goal.

ICT can help a hospital overcome problems and operate well in an economic sense by providing tools and solutions that can (Al-Shorbaji N., 2022):

- *Increase revenue.* Telemedicine and virtual visits can help increase revenue by providing patients with more convenient and flexible options for receiving medical care. For example, a hospital can use a telemedicine platform to conduct virtual consultations with patients, allowing them to receive medical care remotely, without the need to come to the hospital in person. This can increase revenue by allowing the hospital to see more patients in a given period of time. Additionally, Electronic Health Records (EHRs) can help increase revenue by ensuring that the hospital is reimbursed for all services provided. By having accurate and complete patient data, the hospital can bill correctly and avoid denied claims.
- *Reduce costs.* Automated workflows and remote monitoring can help to reduce labour costs by automating manual processes and reducing the need for in-person visits. For example, a hospital can use an automated workflow system to manage patient scheduling, which can free up staff time and reduce administrative costs. Additionally, remote monitoring can help to reduce costs by allowing patients to be monitored remotely, reducing the need for in-person visits. For example, a hospital can use a remote monitoring system to track the vital signs of patients with chronic conditions, allowing them to receive care at home rather than in the hospital.
- *Improve patient outcomes.* ICT can help hospitals to analyze patient data and identify trends and patterns, which can help to improve patient outcomes by identifying potential issues early and providing targeted care. For example, a hospital can use an analytics platform to analyze patient data and identify patients who are at a high risk of readmission. The hospital can then provide targeted care to these patients to reduce the likelihood of readmission.
- *Streamline operations.* ICT can help to streamline operations by automating manual processes, reducing the need for in-person visits, and improving communication between patients, medical staff, and hospital administrators. For example, a hospital can use a communication platform to facilitate real-time communication between medical staff, which can improve coordination and responsiveness, and reduce the likelihood of errors.

- Enhance the decision-making process. ICT can provide advanced analytics tools that can help hospitals to analyze data and identify trends and patterns, which can help to make more informed decisions. For example, a hospital can use an analytics platform to analyze patient data and identify patterns in patient outcomes, which can help to identify areas where the hospital can improve care and reduce costs.
- Facilitate remote work. ICT can help hospital staff to work remotely and securely, which can help to reduce the risk of infection and improve the overall efficiency of the hospital. For example, a hospital can use a virtual private network (VPN) to allow employees to securely access the hospital's systems and resources from home, which can help to reduce the need for in-person visits to the hospital.
- Help to manage cash flow. By providing financial management tools that can help to manage accounts receivable, track revenue and expenses, and forecast future revenue and expenses. For example, a hospital can use a financial management system that allows them to see the financial status of their organization in real-time and make better-informed decisions on how to manage the cash flow.

These are just a few examples of how ICT can help hospital overcome problems and operate well in an economic sense. It's important to note that the specific solutions and technologies used will depend on the hospital's unique needs and challenges.

In OB "Dr. Tomislav Bardek", Koprivnica, ICT during the COVID-19 pandemic enabled the suppression of infection through: telemedicine, remote monitoring of patients, virtual meetings, medical documentation of patients and the possibility of entering data outside the COVID department.

4.2. Research results of exploring the example of the General Hospital "Dr. Tomislav Bardek" Koprivnica

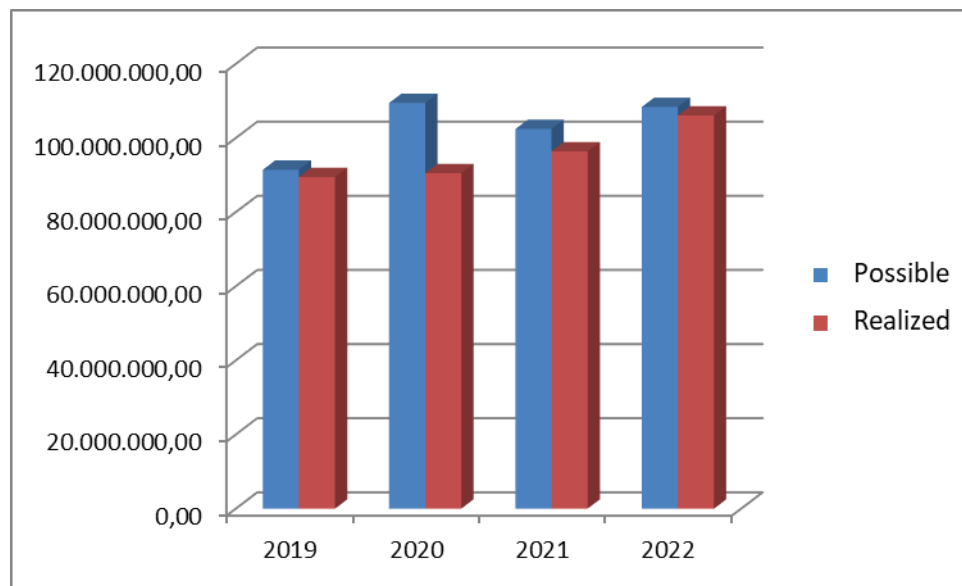
Research was conducted, which consists of monitoring key economic indicators of business, and analysis of the application of "anti-covid" ICT solutions in the period 2020-2022. The reference point was the operation of the hospital in the first 10 months, pre-pandemic 2019. The results were compared with 10 months in the years of the pandemic.

First of all, the realized incomes were compared in relation to the possible ones (limit of the Croatian Institute for Health Insurance).

Table 1: Comparison realized and possible incomes

	Possible (P)	Realized (R)	R/P
2019	91,445,571.12	89,463,288.13	97.83
2020	109,461,995.15	90,523,790.36	82.70
2021	102,446,102.66	96,397,073.93	94.10
2022	108,371,906.62	106,079,892.50	97.89

Source: Author

Figure 1: Comparison realized and possible incomes

Source: Author

4.2.1. Discussion on economic indicators

Analyzing the "realized/ possible" index, it is evident that in 2020, the economy of the entire business fell by 15.13% compared to the pre-pandemic 2019. The reason for this is the closure of the hospital in the sense that only emergency patients were accepted. In 2021, the profitability of the entire business increased compared to 2020 by 11.40%. This is a consequence of the adaptation of the system to the pandemic. In the context of our research, the aforementioned increase is also a consequence of the introduction of new ICT solutions (better monitoring of the infected, better communication between healthcare providers, COVID passports, a system of testing and records, vaccination and vaccination records, better information for citizens via web portals and social networks). All this results in a better financial result. In 2022, the hospital's operations reached the pre-pandemic level and it can be said that this is the consolidation phase. Here, ICT is used for the purpose of analyzing and predicting trends, not just identifying COVID-positive patients. Economic indicators are statistics that measure various aspects of a country's or an organization's economic performance. Some examples of economic indicators that can be used to measure the performance of a hospital include:

- Revenues: The amount of money that a hospital brings in through various sources, including patient payments, insurance reimbursements, and government funding.
- Expenses: The amount of money that a hospital spends on things like employee salaries, supplies, and equipment.
- Operating margin: The difference between a hospital's revenues and expenses, expressed as a percentage.
- Occupancy rate: The percentage of beds in a hospital that are occupied by patients.
- Staff productivity: A measure of the work activity of staff, such as the number of patients seen per hour or the number of surgeries performed per day.
- Patient volume: The number of patients that a hospital sees on a regular basis.
- Length of stay: The average number of days that a patient stays in a hospital.

- Financial stability: This measures the hospital's ability to maintain its financial viability over time, such as liquidity, profitability and debt-equity ratio.
- Capital expenditures: The amount of money that a hospital spends on new equipment and facilities.
- Return on Investment (ROI): The ratio of net profit to invested capital, it measures how efficiently a hospital is utilizing its resources.

4.2.2. How calculate economic indicators (examples)

Revenues: A hospital's total revenue for the fiscal year ending December 31, 2022 was \$500 million.

Expenses: A hospital's total expenses for the fiscal year ending December 31, 2022 was \$450 million.

Operating margin: A hospital's operating margin for the fiscal year ending December 31, 2022 was 10% (calculated as $(\text{revenues} - \text{expenses}) / \text{revenues}$)

Occupancy rate: A hospital's occupancy rate for the month of June 2022 was 85%

Staff productivity: A hospital's staff productivity for the month of June 2022 was seeing an average of 15 patients per hour per doctor.

Patient volume: A hospital saw a total of 30,000 patients in the month of June 2022.

Length of stay: A hospital's average length of stay for patients in the month of June 2022 was 3.5 days.

Financial stability: A hospital's current ratio for the fiscal year ending December 31, 2022 was 1.8, indicating that the hospital has enough current assets to cover its current liabilities.

Capital expenditures: A hospital spent \$10 million on new equipment and facilities in the fiscal year ending December 31, 2022.

Return on Investment (ROI): A hospital's ROI for the fiscal year ending December 31, 2022 was 15% (calculated as $\text{net profit} / \text{invested capital}$)

Net Patient Revenue (NPR): A hospital's NPR for the fiscal year ending December 31, 2022 was \$450 million

Gross Margin: A hospital's gross margin for the fiscal year ending December 31, 2022 was 10% (calculated as $(\text{Net Patient Revenue} - \text{cost of providing care}) / \text{Net Patient Revenue}$)

Debt-to-Equity Ratio: A hospital's debt-to-equity ratio for the fiscal year ending December 31, 2022 was 0.5, indicating that for every \$1 of equity; the hospital has \$0.5 in debt.

Please note that these examples are fictional and do not represent actual values for any specific hospital.

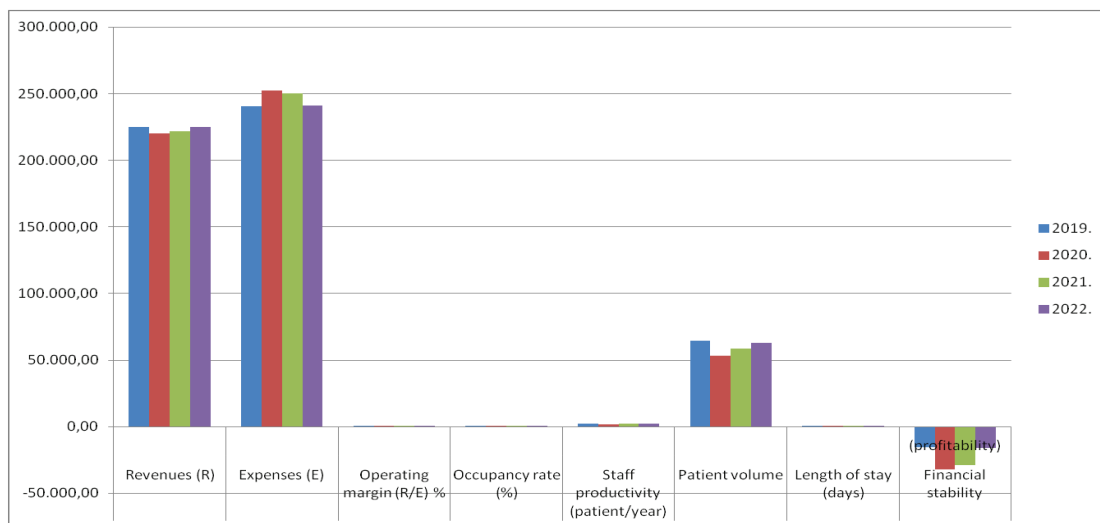
The research covers those economic indicators which are affected by the pandemic and with using of ICT tools. The obtained results confirm the assumption that with a more intensive application of ICT tools in the control of the pandemic, the operation of the hospital is better.

Table 2: Economic indicators affected by the pandemic and the use of ICT

Year	Revenues (R)	Expenses (E)	Operating margin (R/E) %	Occupancy rate (%)	Staff productivity (patient/year)	Patient volume	Length of stay (days)	Financial stability (profitability)
2019.	225.225,64	240.461,53	93,66	89,35	2456	64721	5,22	-15.238,89
2020.	220.338,73	252.614,98	87,22	77,44	1789	53423	5,26	-32.276,24
2021	221.575,36	250.374,23	88,50	84,32	2187	58494	5,30	-28.798,88
2022.	225.128,10	241.009,35	93,41	88,92	2443	62699	4,90	-15.881,26

Source: Author

Figure 2: Economic indicators affected by the pandemic and the use of ICT



Source: Author

4.2.3. Survey

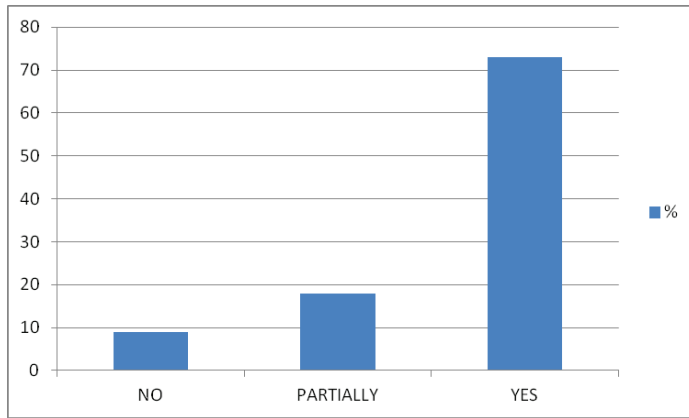
The survey was conducted in May 2022. In survey are participated 528 healthcare professionals (160 doctors and 368 nurses). The survey tried to confirm the assumptions from the economic analysis. The opinion of healthcare workers was sought on the application of ICT during the pandemic.

The survey reached the following results:

1. Does ICT help you monitor COVID-19 positive patients? (NO, PARTIALLY, YES)
2. When did you start using the COVID passports? (end of 2020, 2021)
3. When did the number of patients in the hospital increase? (2020, 2021, 2022)
4. When did you start recording the tested and targeted population? (2020, 2021, 2022)
5. Do you use telemedicine, virtual meetings in the treatment of COVID-positive patients? (YES, NO)
6. Is the record of COVID patients taking up too much time? (YES, NO)

4. 2. 3. 1. Results of the survey

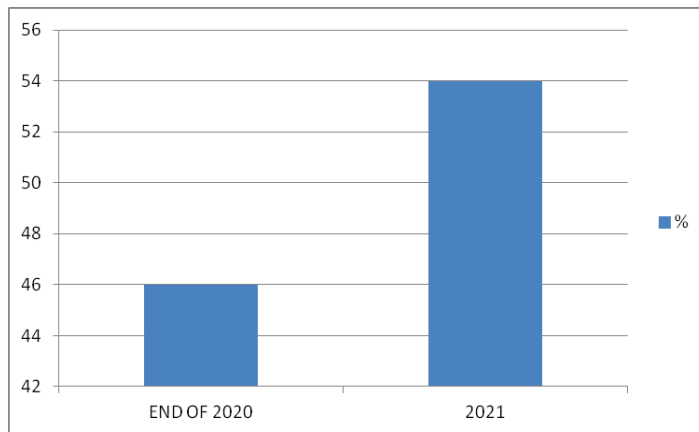
Figure 3: Does ICT help you monitor COVID-19 positive patients?
(NO, PARTIALLY, YES)



	%
NO	9
PARTIALLY	18
YES	73
	100

Source: Author

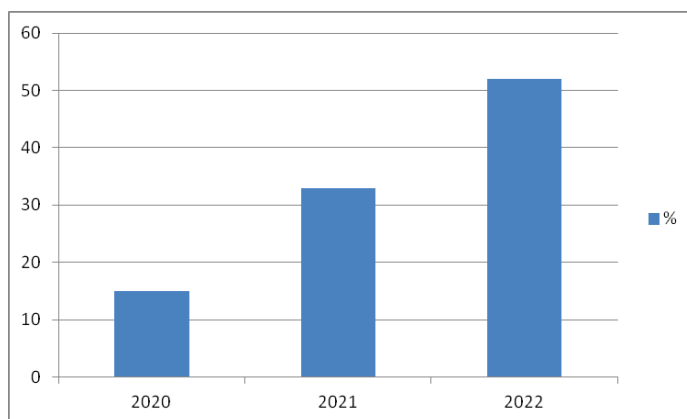
Figure 4: When did you start using the COVID passports? (end of 2020, 2021)



END OF 2020	46
2021	54

Source: Author

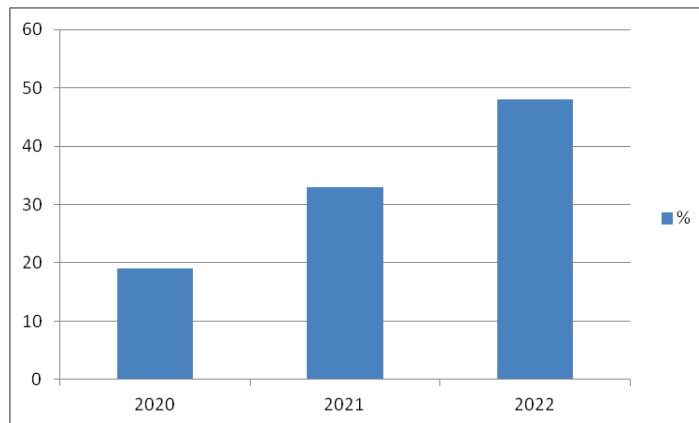
Figure 5: When did the number of patients in the hospital increase? (2020, 2021, 2022)



	%
2020	15
2021	33
2022	52

Source: Author

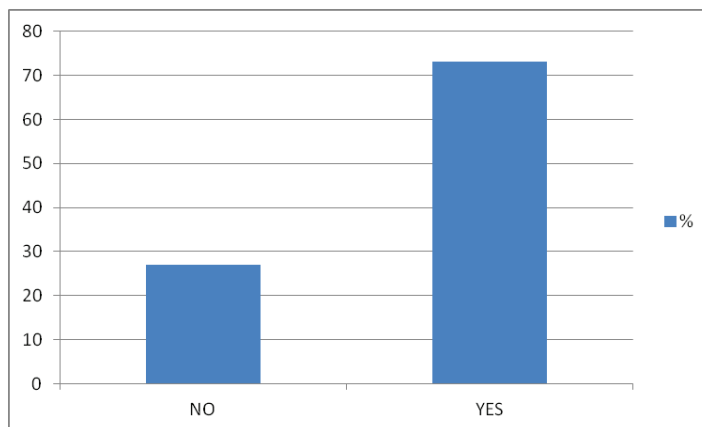
Figure 6: When did you start recording the tested and targeted population? (2020, 2021, 2022)



	%
2020	19
2021	33
2022	48

Source: Author

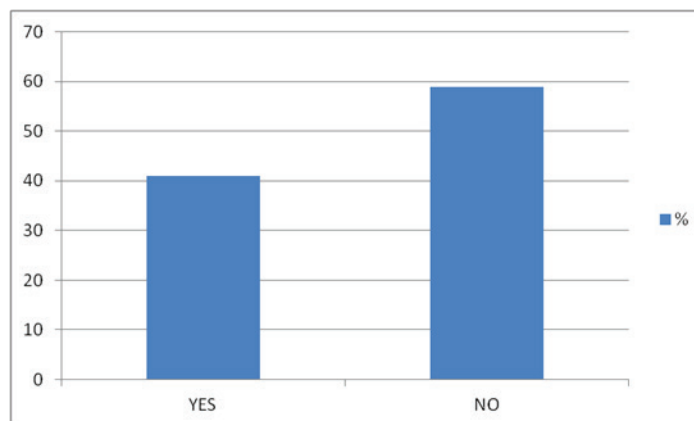
Figure 7: Do you use telemedicine, virtual meetings in the treatment of COVID-positive patients? (YES, NO)



YES	27
NO	73

Source: Author

Figure 8: Is the record of COVID patients taking up too much time? (YES, NO)



YES	41
NO	59

Source: Author

4. 2. 3. 2. Discussion of the survey

Answer to the question *Does ICT help you monitor COVID-19 positive patients?* shows that 73% of respondents believe that information and communication technology (ICT) helps in observing and monitoring patients who have the corona virus, and only 9% believe that they do not need ICT. The answers fully justify the use of ICT in the COVID-19 pandemic.

Answer to the question *When did you start using the COVID passports?* shows that the majority of respondents started using (in terms of checking patients) COVID-19 passports during 2021, which coincides with the beginning of hospital business consolidation.

Answer to the question *When did the number of patients in the hospital increase?* shows that 15% of respondents believe that the number of patients will increase in 2020, 33% in 2021 and 52% of respondents believe that the number of patients will increase in 2022. The answers coincide with the fact that in 2020 there were not enough ICT solutions to support the monitoring of the pandemic, in 2021 there are more ICT solutions for monitoring the pandemic (COVID passports, marking of COVID-positive patients in information systems, connecting medical institutions regarding the monitoring of COVID-positive patients, vaccinated patients are registered). In 2022, the monitoring of COVID-positive patients and patient records in information systems (have they been vaccinated once, twice, three times, have they recovered from COVID-19) are being improved. The answers to this question indicate that 2020 is the most difficult year, 2021 is the year of adjustment, and 2022 is the year of consolidation.

Answer to the question *When did you start recording the tested and targeted population?* shows that only 19% of respondents believe that the monitoring of tested and positive patients began in 2020, 33% believe that this happened in 2021, and 48% of respondents began to monitor tested and positive patients in 2022. The distribution of answers to this question also confirms that 2020 is the most difficult year, 2021 is the year of recovery, and 2022 is the year of consolidation, and this is in accordance with the amount of ICT services that have been introduced over the years to contain the pandemic.

Answer to the question *Do you use telemedicine, virtual meetings in the treatment of COVID-positive patients?* shows that in 73% of cases, doctors use telemedicine to treat COVID-positive patients, which confirms the importance of ICT in the era of the pandemic.

When it comes to the answer of question *Is the record of COVID patients taking up too much time?* a large percentage of respondents, 41% of them, answered that they spend a lot of time recording COVID-positive patients, which is an indication that ICT services related to the coronavirus pandemic have space for improvement.

Looking at the survey as a whole, it can be concluded that ICT plays an important role in controlling the pandemic. The operation of the hospital during the pandemic has become more efficient over the years (see *Table 2.* and *Figure 2*), and this corresponds to the increasing use of ICT in the control of the pandemic.

5. Conclusions

In the era of the COVID-19 pandemic, the economic analysis of hospital operations is essential for several reasons, which are listed below:

- Hospital revenue and profitability may decrease due to decreased patient volume and elective procedures being postponed.
- Costs may increase due to the need for additional personal protective equipment and increased staffing for COVID-19 patients.
- Hospitals may experience a financial burden due to the cost of testing and treating COVID-19 patients, especially those who are uninsured.
- Hospitals may also see an increase in bad debt as patients struggle to pay for their medical bills due to job loss or economic hardship caused by the pandemic.
- Hospitals may also see an increase in expenses related to telemedicine and remote monitoring as they work to keep patients and staff safe while providing care.

The pandemic is likely to have a significant financial impact on hospitals, and they will need to find ways to adapt and manage costs while still providing quality care to patients.

Information and communication technologies (ICT) have played a crucial role in responding to the COVID-19 pandemic. They have been used to deliver telemedicine services, allowing people to consult with healthcare professionals remotely, and to provide remote learning opportunities for students. Additionally, ICT has been used to disseminate information about the virus and to coordinate the response to the pandemic. However, the increased use of ICT has also highlighted existing digital divides and the need to address issues of digital inequality. Overall, ICT has been an important tool in addressing the challenges posed by the pandemic, but it is important to continue to work to ensure that everyone has access to these technologies.

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A scientific paper

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GREY AREA IN BUSINESS NEGOTIATION PRACTICES

ABSTRACT

Business negotiations, as part of doing business, are subject to clear laws and regulations that all parties must comply with. However, in an effort to achieve the best possible negotiating position or outcome, negotiators are tempted to skirt the edges of the laws or exploit their vagueness. Furthermore, unethical negotiation tactics are valued differently across cultures. The aim of this paper is to examine the extent to which negotiators from Croatian companies have had experiences that fall into the grey area of the negotiation process and whether these experiences depend on the frequency of negotiations, affiliation with the service sector, and orientation towards the domestic market. For this purpose, research on a sample of 157 companies in the Republic of Croatia was conducted. The results show that negotiators faced bribery, misrepresentation, false promises, and misuse of confidential business information by the negotiating partner. A weak to moderate correlation was found between the variable frequency of negotiations and the variables bribery, misrepresentation, and false promises. Belonging to the service sector is not statistically significant for the aforementioned experiences, and the same is true for orientation towards the domestic market. More specifically, negotiators in the domestic and international markets are equally exposed to bribery, misrepresentation, false promises, and misuse of business information.

Key words: *Negotiation frequency, Bribery, Misrepresentation, False promises, Misuse of business information.*

1. Introduction

A negotiation can generally be viewed as a process of exchanging information and concessions that the negotiating parties are willing to agree to. In the modern business world, negotiation is a dynamic process in which its integral but often distinct dimensions are managed simultaneously (Age, Eklinder-Frick, 2017). Global companies' survival and growth increasingly depends on the effectiveness of business negotiations (Reynolds, Simintiras and Vlachou, 2003). Understanding cultural similarities and differences is extremely important for negotiators in today's globalised world. In this context, it is critical to make business relationships successful in a culturally driven environment that is becoming increasingly

demanding and complicated. To be a successful global manager, it is of utmost importance to be aware of the degree of cultural distance and to understand cultural differences, ethics and values in different countries and cultures. For managers and executives negotiating with international partners who differ culturally, understanding the complex factors that influence cross-cultural business negotiations is a fundamentally important skill (Usunier, 2019). Various cultural dimensions influence negotiation outcomes, and the negotiator's cultural awareness contributes to a comprehensive understanding of the other negotiating party's behaviour, interests, preferences, tactics, and strategies and can give the negotiator certain advantages at the negotiating table. Intercultural awareness is strategic in the global marketplace (Hofstede, 2015).

Managers operating in a global business environment face complex ethical dilemmas that make it quite difficult to make ethically sound decisions, given the uncertain and far-reaching consequences they may have. It repeatedly happens that qualified and well-trained executives have to make decisions that have an ethical content for which they are in no way prepared by their training or previous experience. The nature, frequency, and variety of these ethical dilemmas is a source of tension (McNeil and Pedigo, 2001). Knowing the character and history of the two cultures can lead to understanding the basis of their ethical systems, as ethics and expectations within the cultures influence all business transactions (Pitta, Fung and Isberg, 1999). With regard to cross-cultural negotiations, culturally normative behaviours are those that are socially appropriate in particular cultures under consideration (Babu and Hisrich, 2023). In an international context, cultures function in very different ways and have fundamentally different norms of behaviour because of their different views of human nature. They can be broadly divided into rule-based and relationship-based cultures, which differ in that behaviour in the former is primarily determined by adherence to rules and in the latter by authority figures (Hooker, 2009).

There is an extensive literature dealing with unethical behaviour in negotiations and the use of deceptive tactics in negotiations (Cohen, 2010; Al-Khatib et al, 2005; Fulmer, Barry and Long, 2009; Robinson, Lewicki and Donahue, 2000; Yang, De Cremer and Wang, 2017; Fulmer, Barry and Long, 2009; Brannon and Manshad, 2023; Banas and Parks, 2002; Al-Khatib, Vollmers and Liu, 2007; Guvenli and Sanyal, 2012; Pedigo and Marshall, 2012; Triandis et al., 2001; Mazar and Aggarwal, 2011; Kaufmann et al., 2018). In the Croatian context, ethics in business negotiations is still an under-researched topic. Research on the characteristics of Croatian negotiators, their negotiation practises, and cross-cultural negotiation differences is rather limited. Looking at previous research broadly, two research directions can be distinguished. The first mainly refers to empirical studies on individual elements of the negotiation process in different contexts (Križman Pavlović and Ružić, 2013; Tomašević Lišanin, Razum, and Marić, 2015; Perkov, Primorac, and Kozina, 2016; Grubišić, Tomašević Lišanin, and Palić, 2022). The second direction is mainly based on Hofstede's model of cultural dimensions (Lažnjak, 2011; Podrug, Filipović, and Staničić, 2014; Dabić, Podrug, and Tipurić, 2015; Rajh, Budak, and Anić, 2016). In this context, unethical behaviour and ethically questionable strategies faced by Croatian negotiators in their business activities and negotiations in the international context have not been addressed in depth.

The aim of the study is twofold. The first objective is to investigate the frequency of occurrence of unethical negotiation tactics (bribery, misrepresentation, i.e., exceeding one's authority, false promises, and misuse of confidential business information by the negotiating partner) during the negotiation process. Such phenomena belong to a so-called "grey area" because they are regulated differently in different countries and sometimes there is no clear

line between bribery and gifts, or between telling lies and concealing business information, which could potentially prevail in the negotiation process. The second objective of the paper is to investigate which predictors (frequency of negotiations, service sector affiliation, and domestic market orientation) influence the variables of the grey area. To achieve these objectives, the following research questions (RQ) are formulated:

RQ 1: Does the negotiator's experience influence the perception of unethical negotiation practices?

RQ 2: Are business negotiations between service firms more prone to unethical negotiation practices?

RQ 3: Are business negotiations in the Republic of Croatia more prone to unethical negotiation practices?

The paper is divided into five sections. After the introduction, the second section contains a literature review examining some examples of unethical negotiation practices in business, in particular the use of deceptive tactics in cross-cultural negotiation contexts. The third section explains the research methodology, while the fourth section presents the research findings. Finally, the last section draws some conclusions, discusses the limitations of the research, future research directions, and implications for business management.

2. Literature review

International negotiations involve interaction between individuals and groups from different cultural backgrounds. Globalisation has led to different cultures becoming increasingly intertwined as companies operate in a world without borders (Pedigo and Marshall, 2004). A key element of global knowledge management is continuous learning from experiences gained in different cross-cultural contexts. From a practical perspective, the goal of knowledge management in an international environment is to leverage valuable skills used in one cultural setting in another. Knowledge of cultural norms enables negotiators to anticipate, interpret, and respect the behaviour of their counterparts (Brett and Mitchell, 2020). When companies operate internationally, they often find that there are different perceptions of what is considered wrong or right in different countries. Concern for socially responsible and ethical behaviour is becoming increasingly important in all areas of business, including cross-cultural negotiations (Elahee, 2015). Cross-cultural dynamics are prevalent in multinational organisations and among people who regularly work with people from other cultures (Adler and Aycan, 2021).

Ethical dilemmas are inevitable components of cross-cultural business negotiations. It is important for negotiators to know the differences between ethically appropriate and inappropriate actions. In cross-cultural negotiations, it is easy to misunderstand the intentions of the other party (Steers, Nardon and Sanchez-Runde, 2013). Cultures at the national, societal, and individual levels influence in different ways the propensity of negotiators to support questionable negotiation tactics (Stefanidis, Banai, and Erkus, 2021). At first glance, bribery is both unethical and illegal, but a closer look reveals that bribery is not a simple issue, as it can range from gifts to large amounts of money (Hollensen, 2007). In both business and academic literature, *guanxi* is associated with a decline in ethical practices in business, including bribery and corruption, but the literature also notes that this need not be the case (O'Shannassy, 2017). Leung and Wong (2001) conclude that *guanxi* is ethical in principle, but should also be viewed with caution. Gift giving is an important part of Asian

culture and can be viewed as a form of relationship investment (D'Souza, 2003). Hofmaier (2015) notes that gift giving is a particularly dangerous area of cross-cultural negotiation, as it is an integral part of social and business interactions in some cultures, while in others it can be viewed as bribery and is subject to criminal sanctions. In the context of business relations between Australia and China, gifts, guanxi, bribery, and corruption are among the biggest problems in maintaining business relations between the two countries (O'Shannassy, 2017).

In terms of ethical decision-making, managers need to be aware of the limits of acceptability of their behaviour in an increasingly globalised economy. Knowledge of the behaviours and ethics of other cultures can help determine if a particular course of action is appropriate (Singh, 2008). The ethical acceptability of certain practises and the general level of tolerance varies from country to country (Zarkada-Fraser and Fraser, 2001). Garcia et al. (2014) found that American managers are more committed to their own ethical beliefs than to the ethical beliefs of their supervisors or the company, while East Asian cultures tend to focus on the importance of acting in the supervisor's best interest. In the organisational context, Salama and Chikudatethis (2022) noted that Indonesian business people are imbued with the calculating rationality of a profit-oriented mindset. Hood and Logsdon (2002) argue that bribery violates all ethical principles because it substitutes self-interest for objective business-related and legal criteria for awarding contracts and setting business terms. Aupperle and Camarata (2007) argue that conflicting views of ethical reality can arise, particularly in situations involving bribery. Ashyrov (2020) found that managerial personality traits such as risk taking and innovativeness were positively related to the likelihood of paying bribes.

Deceptive tactics in negotiation include lying, false representations of value, false nonverbal messages, false demands, false disinterest in the deal or concessions, etc. The main goal of using deceptive tactics is to disguise one's negotiation strategy and objectives or to mislead the other side (Katz, 2008). By withholding such information or credibly conveying false information, negotiators intend to reach agreements that favour their position. Jensen (2013) argues that bluffing can lead to good outcomes, but the decision is always uncertain. Individuals from different countries may differ in their use of ethically questionable tactics in business negotiations. Americans were more likely to use ethically questionable tactics such as false promises and inappropriate information gathering in cross-cultural negotiations with Chinese (Yang, De Cremer, and Wang, 2017). A comparative study of U.S. and Saudi managers suggests that managers exhibit significant differences in their individual characteristics, which also have a differential impact on managers' perceptions of unethical negotiation tactics (Al-Khatib, Malshe, and AbdulKader, 2008). A comparison between U.S. and Belgian managers found that deceptive tendencies and relativism were significant predictors of opportunism in both countries, which in turn predicted susceptibility to unethical negotiation tactics (Al-Khatib et al., 2011). As for Chinese negotiators, there is evidence that they have more confidence in the successful use of emotion management tactics than in cognitive deception tactics (Chan and Ng, 2016). On the other hand, Ma (2010) found that Chinese are more likely to use ethically inappropriate negotiation strategies.

Being confronted with unethical negotiation behaviour and practices is especially evident when the counterpart is from a different cultural background. Culture has a direct impact on the legal environment, the organization's code of ethics, the organization's goals, and the perception of the other party (Rivers and Lytle, 2007). Cultural collectivism was positively related to the propensity to lie and bribe in negotiations and to stronger emotional reactions after the use of deception (Triandis et al., 2001). Collectivism also promotes bribery by lowering perceived responsibility for one's actions (Mazar and Aggarwal, 2011). Al-Khatib et

al. (2005) argue that idealism and Machiavellianism are strong predictors of managers' perceptions of the ethical appropriateness of negotiation tactics.

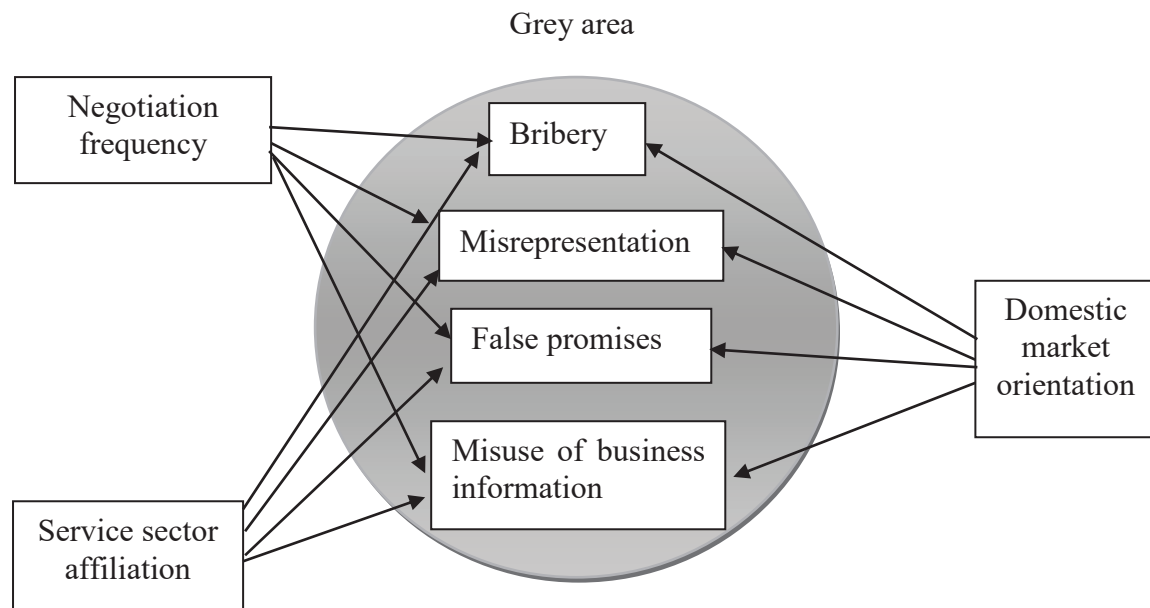
Managers who try to respect local norms when operating in a cross-cultural environment may face an ethical dilemma when confronted with values that potentially conflict with their own. For Australian managers, bribery is the biggest ethical dilemma they face when conducting international business (Pedigo and Marshall, 2009). Sanyal (2005) confirmed that both economic (low per capita income and lower disparities in income distribution) and cultural factors (high power distance and high masculinity) were important explanatory factors of bribery. There is evidence that attitudes toward bribery in international business differ between men and women (Güvenli and Sanyal, 2012) and that women tend to be more averse to questionable tactics than men (Robinson, Lewicki, and Donahue, 2000). Individuals considered emotionally misleading tactics more ethically appropriate for negotiation than informational deception (Fulmer, Barry, and Long, 2009). Kaufmann et al. (2018) note that negotiations can also leave parties vulnerable to deception. Empathy prevents misrepresentation, inappropriate information gathering, and feigning emotion to manipulate opponents (Cohen, 2010).

Nam, Weaver, and delMas (2015) confirm that cross-cultural experts believe that perpetuating cultural stereotypes and misrepresenting one's training skills in the field of cross-cultural relations are the two most important ethical concerns. Consequently, the role of trust-building is strongly emphasized in the context of global negotiations and encounters between different cultures. In general, trust serves as the foundation for building a network of positive relationships among companies, customers, employees, and stakeholders (Thanetsunthorn and Wuthisatian, 2019). In addition, trust plays an important role in business people's choice of negotiation tactics (Elahee and Brooks, 2004). Research shows that trust is culturally embedded and negatively related to the likelihood of using certain questionable negotiation tactics (Elahee, Kirby, and Nasif, 2002). A better interpretation of cross-cultural differences in business ethics can also help practitioners avoid feelings of anger and distrust toward the other side, and thus avoid tactics that could cause even more anger on the other side (Xiao and Ma, 2015).

3. Methodology

For this study, a structured questionnaire was sent via Google forms to a random sample of managers in Croatian companies from February to July 2019. The sample was formed from the population of companies registered in the Register of the Croatian Chamber of Commerce. Before conducting the main survey, a preliminary survey was conducted to ensure that all questions and measurements were structured correctly. Of the total 530 questionnaires sent out, 157 valid questionnaires were received, representing a response rate of 29.6%.

In order to achieve the objectives of the paper, the authors proposed a research model, which is shown in Figure 1. The centre of the figure represents the "grey area" in negotiation practices given by four dependent variables: bribery, misrepresentation, false promises, and misuse of business information. The model includes three independent variables: frequency of negotiation, service sector affiliation, and domestic market orientation. The purpose is to examine whether there is a relationship between each independent variable and each dependent variable.

Figure 1: Model proposal

Source: Authors

Bribery is usually defined as any offer (in the form of money or something else of value) to influence a decision and is common in certain cultures (Güvenli and Sanyal, 2012; Pedigo and Marshall, 2009; Triandis et al. 2001; Cohen, 2010; Aupperle and Camarata, 2007; Sanyal, 2005; Mazar and Aggarwal, 2011; Yang, De Cremer and Wang, 2017; Kaufmann et al., 2018). The variable bribery, like the other dependent variables, is measured as frequency of occurrence in the negotiation process using a 5-point Likert scale (Table 1). The scale was as follows: 1 - never, 2 - rarely, 3 - occasionally, 4 - frequently, and 5 - daily. Misrepresentation is a second dependent variable in this model. In the negotiation process, it means exceeding one's authority. It has been the subject of several studies (Cohen, 2010; Al-Khatib et al., 2005; Fulmer, Barry and Long, 2009; Robinson, Lewicki and Donahue, 2000). False promises, another unethical practice, belong to a group of deceptive tactics aimed at misleading the other negotiating party (Cohen, 2010; Yang, De Cremer and Wang, 2017; Al-Khatib et al., 2005; Fulmer, Barry and Long, 2009; Robinson, Lewicki and Donahue, 2000; Brannon and Manshad, 2023). Misuse of information includes withholding important information, bluffing, and inappropriate information gathering (Robinson, Lewicki and Donahue, 2000; Banas and Parks, 2002; Al-Khatib, Vollmers and Liu, 2007). These tactics are used to gain an advantage over the other party.

The independent variable frequency of negotiation determines negotiator's experience. The more often he/she negotiates, the more experience he/she has. It is also measured with a 5-point Likert scale. Since the research was conducted in Croatia, certain characteristics of the environment were taken into account, such as the growing importance of the service sector for the Croatian economy and the Corruption Perception Index, which ranks Croatia 57th out of 180 countries according to the latest data (Transparency International, 2022). The service sector affiliation and domestic market orientation variables were dummy variables. Originally, respondents could choose one of the five sectors offered: primary, secondary, tertiary, quaternary, and quinary. For the purposes of this analysis, the sector data were

divided into two groups based on whether or not the sector was a service sector. Finally, managers were asked to indicate whether more than half of their company's revenues came from the domestic market.

Table 1: Variables and measurements

Variables	Measurements
Bribery	1 – 5 1: never; 5: daily
Misrepresentation	1 – 5 1: never; 5: daily
False promises	1 – 5 1: never; 5: daily
Misuse of information	1 – 5 1: never; 5: daily
Frequency of negotiations	1 – 5 1: never; 5: daily
Service sector affiliation	No Yes
Domestic market orientation	No Yes

Source: Authors

Single-item measures were used in this work. Preliminary research proved their reliability. The same approach was followed by Scarpello and Campbell (1983) and Wanous, Reichers, and Hudy (1997).

4. Research findings

Data obtained from the questionnaires were analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0. Table 2 shows the descriptive statistics of the variables. The minimum, maximum, mean, and standard deviation were calculated.

Table 2: Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Bribery	157	1	5	1.38	0.788
Misrepresentation	157	1	5	1.67	0.901
False promises	157	1	5	2.42	1.251
Misuse of information	157	1	5	1.68	0.935
Frequency of negotiations	157	1	5	3.25	1.334
Service sector affiliation	157	0	1	0.55	0.499
Domestic market focus	157	0	1	0.55	0.499

Source: Authors

The results presented in Table 2 show that, in general, respondents do not often encounter unethical negotiation practices. This was to be expected, since individual perceptions of ethics vary from person to person, and the absence of a perception does not mean that there are no phenomena.

Table 3 summarizes the frequencies of the sample.

Table 3: Sample frequencies

Variable	Frequency	Percent
Bribery	157	100
1	120	76.4
2	21	13.4
3	12	7.6
4	2	1.3
5	2	1.3
Misrepresentation	157	100
1	86	54.8
2	47	29.9
3	16	10.2
4	6	3.8
5	2	1.3
False promises	157	100
1	48	30.6
2	37	23.6
3	43	27.4
4	16	10.2
5	13	8.3
Misuse of information	157	100
1	88	56.1
2	43	27.4
3	18	11.5
4	5	3.2
5	3	1.9
Frequency of negotiations	157	100
1	22	14.0
2	20	12.7
3	49	31.2
4	28	17.8
5	38	24.2
Service sector affiliation	157	100
No	71	45.2
Yes	86	54.8
Domestic market orientation	157	100
No	71	45.2
Yes	86	54.8

Source: Authors

Nearly 90% of the respondents indicated that they had never or rarely encountered bribery. Only 7.6% had occasionally dealt with bribery, 1.3% frequently, and daily. One possible explanation could be that people are not entirely sincere about sensitive issues such as bribery. The situation is somewhat worse for misrepresentation. False promises emerged as the biggest issue in the negotiation process. As many as 18.5% of negotiators made a false promise during the negotiation. The reason for this finding may be that negotiators view false promises as a benign business move that is the least ethically objectionable and is used more frequently.

The data for the misuse of confidential information variable revealed, similarly to misrepresentation, that about 5% of managers face this problem frequently or daily. Regarding the frequency of negotiations, 14% of managers never negotiate and 24.2% negotiate daily. Nearly 55% of respondents work in a service sector company. The same percentage of respondents represent companies that operate primarily in their home country.

Before further analysis, the correlations between dependent and independent variables should be evaluated (Table 4).

Table 4: Correlation matrix

Independent Dependent	Frequency of negotiations	Service sector affiliation	Domestic market orientation
Bribery	0.195*	0.036	-0.115
Misrepresentation	0.257**	0.012	-0.134
False promises	0.220**	0.033	-0.083
Misuse of information	0.144	-0.66	-0.082

**P < 0.01

*p < 0.05

Source: Authors

It can be noted that the variable negotiation frequency is positively correlated with the dependent variable bribery at a confidence level of 95%. This means that managers who negotiate more frequently are more likely to be exposed to the offer of bribery. There is also a significant correlation with the dependent variables misrepresentation and false promises, but at a 99% confidence level. The positive correlation with the dependent variable misuse of information is not statistically significant.

On the other hand, companies in the service sector tend to be affected more often by the above dishonest acts or unethical behaviour than companies outside the service sector. The exception is a negative correlation between belonging to the service sector and misuse of information, which means that misuse of confidential business information is more common in companies outside the service sector. However, these correlations are not statistically significant.

There is a negative correlation between the domestic market orientation variable and all dependent variables. That means that negotiation with bribery, misrepresentation, false promises, and misuse of information are more common in firms that operate internationally than in firms that focus primarily on the domestic market. Unfortunately, such conclusions are confirmed with less than 95% confidence. In other words, the correlations are not significant. The final step in the statistical analysis of the data is to perform a linear regression, which is shown in Table 5. It should be noted that only statistically significant correlations serve as the basis for further analysis. Since the relationships between the predictors belonging to the service sector and dominance in the home market are not statistically significant, only the predictor negotiation frequency is included in the analysis. On the other hand, the dependent variable information misuse is excluded because it is not significantly correlated with any predictor.

Table 5: Linear regression report

Dependent variables	B	Constant	R ²	Sig. F
Bribery	0.115	1.001	0.038	0.014
Misrepresentation	0.174	1.104	0.060	0.001
False promises	0.206	1.750	0.048	0.006

Independent variable: Frequency of negotiations

Source: Authors

Table 5 provides a summary overview of the three regression analyses between the independent variable or predictor, i.e., negotiation frequency, and the three dependent variables. According to the results presented in the correlation matrix, the regression relationships are positive and significant at $p < 0.05$.

The linear regression results allow the formation of a linear regression formula using the values “B” and “constant”. The basic formula of the linear regression is

$$Y = B \cdot X + a \quad (1)$$

Where:

Y= dependent variable

B= beta coefficient, slope

X= independent variable

a= constant

Here are the formulas for the first (2), second (3) and third (4) linear regression:

$$Y_{\text{Bribery}} = 0.115 \cdot X_{\text{Frequency of negotiation}} + 0.206 \quad (2)$$

$$Y_{\text{Misrepresentation}} = 0.174 \cdot X_{\text{Frequency of negotiation}} + 1.104 \quad (3)$$

$$Y_{\text{False promises}} = 0.206 \cdot X_{\text{Frequency of negotiation}} + 1.750 \quad (4)$$

With the formulas of linear regression, it is possible to predict the value Y for any given value X. The positive relationship between negotiation frequency and the dependent variables (bribery, misrepresentation and false promises) is evidenced by the positive beta coefficient (0.115, 0.174, and 0.206). Another useful linear regression result is the R² value or coefficient of determination. R² determines the proportion of variance in the dependent variable that can be explained by the independent variable. According to the R² values in Table 5, the predictor negotiation frequency explains 3.8% of the variance in bribery. The same predictor explains 6% of the variance of misrepresentation and 4.8% of the variance of false promises. These results are consistent with the low correlation coefficients from Table 4, indicating low relationships between the variables. The lowest R² value of 3.8% for bribery is not surprising given the lowest mean in Table 2 and the lowest daily frequencies in Table 3.

5. Conclusion

The paper examined the extent to which negotiators from Croatian companies have had experiences that fall into the grey area of the negotiation process and whether these experiences depend on the frequency of negotiations, affiliation with the service sector, and orientation toward the domestic market. This research has shown that negotiators in Croatian companies face difficulties that fall into the grey area of negotiations because they are unethical and regulated differently in foreign legislation. According to the survey results, the biggest problem is the making of a false promise by the negotiating partner. Deliberately making unrealistic promises jeopardizes the outcome of the current negotiation process and destroys the chances for future cooperation. To a somewhat lesser extent, misrepresentation and misuse of information occur. These three negotiation tactics are successful in the short term and can lead to some success on the first try. However, as soon as the other business partner has experienced that such practices no longer lead to success, the “offenders” are permanently classified as unreliable and unsuitable for cooperation.

A lower incidence of unethical business practices was found in the giving/receiving of bribes. The reason for this could be that bribery is considered unethical behaviour in Croatia and is less discussed. On the other hand, in some countries a certain type of offer from the business partner is tolerated, even appreciated, so it does not have a negative connotation. Consequently, in some environments bribery can bring success in the long run. As mentioned, mutual trust is fundamental to the success of any negotiation process. Highly experienced negotiators who negotiate on a daily basis are aware of the challenges associated with offering bribes, misrepresentation by the negotiator(s), false promises, and misuse of confidential business information by the negotiator(s). Aside from the common explanation that negotiators who negotiate more frequently encounter problems more often, part of the explanation lies precisely in their rich experience and knowledge of good negotiation practices. Can a novice negotiator recognize in time that he is being offered unrealistic guarantees or that he has been given incomplete information? Is he being offered a lucrative reward under the table? It is unlikely that this is the case. The study showed that the company’s affiliation with the service sector is not related to the frequency of occurrence of unfair negotiation practices. In addition, orientation to the domestic market does not affect the perception of unethical issues. In other words, according to the results, issues such as bribery, dishonesty or concealment of business information occur equally in the Croatian and foreign markets.

This study also has its limitations. First, the study’s sample is from Croatia, which, along with the sample size, requires careful scrutiny of the results. Consequently, it provides only a limited opportunity to generalise the characteristics of Croatian negotiators who face unethical behaviour, especially deceptive negotiation tactics. Second, given the limited number of variables considered, the study can be extended in many ways. Variables such as a firm’s market position, ownership, or geographic location were not examined in the study. Furthermore, additional characteristics of negotiators such as age, previous negotiation experience, communication style, and risk taking can be examined. In this study, the focus was primarily on deceptive tactics faced by negotiators in a cross-cultural setting. Future work, however, should consider other negotiation tactics, especially exposure to pressure tactics, aggressive or adversarial tactics, and other emotional tactics, defensive tactics, and other negotiation tactics. Consequently, further research is needed to better identify unethical behaviour by negotiators in different cultural settings. Despite its limitations, this study contributes to the existing literature by providing new insights into Croatian managers’

negotiation behaviour and a better overview of unethical practices they encounter in a global negotiation, thus helping us to better understand cross-cultural differences in business ethics in a negotiation context.

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A scientific paper

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THE BENEFITS OF SHORT FOOD SUPPLY CHAINS / LOCAL FOOD SYSTEMS TO SUSTAINABILITY AND LOCAL DEVELOPMENT – LITERATURE REVIEW

ABSTRACT

In the last two decades, new practices of rural development have appeared as a response to the repeated economic, ecological and social crises of the conventional agriculture and food system. They revive alternatives to the industrial way of producing and distributing food, through the "relocalization" of supply chains or food networks, often called short food supply chains (SFSCs) and alternative agri-food networks.

The subjects of the many research programs are two aspects of SFSCs: localization of production and the number of intermediaries in the chain. Numerous studies and scientific papers generally define "local food systems" as those in which the production, processing, trade and consumption of food take place in a narrower geographical territory depending on sources and reflections, in a radius of 20 to 100 km. From another aspect, the specificity of "SFSCs" is the minimal number of intermediaries and the preference for direct contact between producers and consumers in food distribution.

This paper aims to reveal the impact of SFSCs on sustainability and local development. As a research method for writing this paper, it refers to the collection and analysis of secondary data obtained from an extensive review of scientific papers published in WEB of science databases on this topic. The obtained data will be systematized and compared according to two key aspects - localization and the number of intermediaries in the chain, as well as three pillars of sustainability - economic, social, and ecological.

The results of the conducted research show the various economic, social and environmental benefits of SFSCs across the world. Also, the results show that the policymakers' interest in SFSCs has increased in recent years. For this purpose, the results will be used to create guidelines for the further development of SFSCs and to inform interested stakeholders and policymakers who participate in the support system for their development.

Key words: *Short Food Supply Chains, local food systems, sustainability, local development, literature review.*

1. Introduction

Much recent research has attempted to define what type of supply chain should be at the heart of the reflection on re-localisation and re-connection of agriculture and food production (Kneafsey et al, 2013, 13). As stated in the report of Kneafsey et al (2013, 13) both aspects, localisation of the production and length of the supply chain in terms of the number of stakeholders involved, have been studied by several studies that have generally defined 'Local Food Systems' as those where the production, processing, trade and consumption of food occur in a defined reduced geographical area, depending on the sources and reflections, of about 20 to 100 km radius. The following definition of SFSCs "The foods involved are identified by, and traceable to a farmer. The number of intermediaries between farmer and consumer should be 'minimal' or ideally nil" is adopted.

For Marsden et al (2000, 425) a key characteristic of short supply chains is their capacity to re-socialize or spatialize food, thereby allowing the consumer to make value judgements about the relative desirability of foods based on their knowledge, experience, or perceived imagery.

Over the last decades, the sustainability of the conventional agri-food system has been and continues to be contested as both academic and public institutions advocate a transition to "sustainable agri-food systems" (Berti and Mulligan, 2016, 1). Forssell and Lankoski (2015, 15) point out that Alternative food networks (AFNs) do offer real opportunities to promote sustainability directly, and indirectly through enhanced learning and participation, and through potentially bringing sustainability considerations into the mainstream. The main conclusion of Jarzebowski et al (2020, 7) is that SFSCs help to promote and to enable the driving of sustainable farming systems. Differences in the development of SFSCs between countries are mentioned in the literature. Thus, Vittersø et al (2019, 27) state that the development of SFSCs must to a large extent be understood in relation to the social and political context in each country. SFSC is largely a heterogeneous phenomenon, but at the same time this study shows that, along the social sustainability dimension, regardless of the way in which they are organised, both the consumer and the producer perceive that SFSC contributes to closer communication and increased collaboration which strengthens local identity and community building.

Some beneficial effects on the environment, economy, and society may be noticed while shortening the supply chain. The limitation of functional weaknesses of the market through the creation of short supply chains may relate to three sustainability aspects. (Jarzebowski et al, 2020, 7).

The report on a systematic review of existing literature until the year 2011 that have been conducted by Kneafsey et al (2013, 110) states that the main social impacts identified from the literature review include the development of trusting relationships between producers and consumers, improvements in social capital and sense of community, and increased consumer knowledge and understanding of food, farming and environmental issues, which in some cases can lead to behaviour change. And there is little systematic, quantifiable evidence regarding the contribution of SFSCs to rural economies and farmer livelihoods. This is due partly to the methodological difficulties of conducting cross-country comparative research with small and micro-scale enterprises. The economic impacts of SFSCs are usually related to rural development and economic regeneration and some countries (e.g. France, and Austria) do have indicative data regarding the features of SFSCs and their impact in terms of employment and turnover.

This aim of this research was to analyse the impact of SFSCs on sustainability and local development. For that purpose, a systematic literature review (SRL) approach was used. It provides an understanding of trends and detects existing gaps in the scientific literature (Lagorio et al., 2016, 4). In this research, a "protocol" was used in which the research question

and the methods that will be used have been addressed. There are five research questions defined, as follows:

RQ1: What is the scientific community's interest in sustainability aspects of Short Food Supply Chains / Local Food Systems?

RQ2: What is the distribution of papers over the publication years?

RQ3: What are the predominant science categories, publication titles and most cited authors and articles?

RQ4: How did academics face the challenge of measurement/assessment of sustainability aspects of Short Food Supply Chains / Local Food Systems?

RQ5: How did academics face the challenge of sustainability of Short Food Supply Chains / Local Food Systems and territorial (rural/regional/local) development

This study summarises the literature related to SFSCs and the three pillars of sustainability, with a special focus on measuring/assessment of their impacts, and their connection to territorial (rural/regional/local) development. The added value of this study is the identification of SFSCs impact on economic, social and environmental sustainability and the identification of specific indicators for measuring those impacts.

The organization of the rest of the paper is as follows; Section 2 describes the methodology used in this study; Section 3 presents the findings of the conducted review; Section 4 discusses the results; and Section 5 outlines the challenge and suggests further investigation.

2. Methods

The research method for this paper is a systematic literature review (SRL). The SLR is selected as the research method for this study because of the nature of the research questions, which aim at understanding trends and detecting existing gaps in the scientific literature (Lagorio et al., 2016, 4).

A systematic review refers to the process of systematically locating and collating all available information on an effect. Systematic reviews can help to clarify the state of a field of research, determine whether an effect is constant across studies, and discover what future studies are required to demonstrate the effect (Davis et al, 2014, 1).

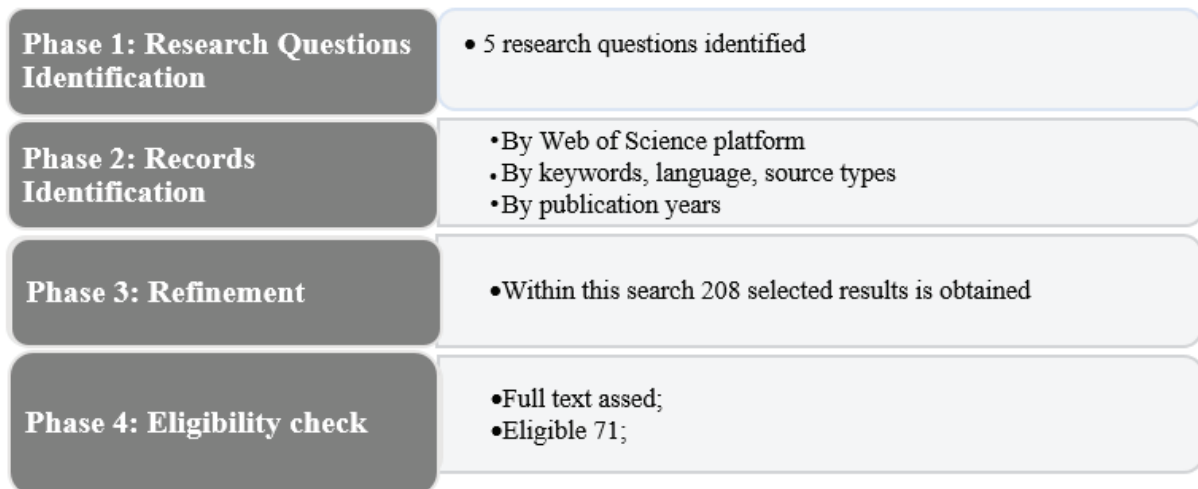
However, for a literature review to become a proper research methodology, as with any other research, follow proper steps need to be followed and action is taken to ensure the review is accurate, precise, and trustworthy (Snyder, 2019, 34).

Systematic reviews start by defining a review protocol that specifies the research question being addressed and the methods that will be used to perform the review (Kitchenham, 2004, 1).

A pre-defined protocol is necessary to reduce the possibility of researcher bias. For example, without a protocol, the selection of individual studies or the analysis may be driven by researcher expectations (Kitchenham, 2004, 4).

For purpose of this work in the review protocol, four phases are defined: Phase 1: "Research Questions Identification; Phase 2 "Records Identification"; Phase 3 "Refinement"; Phase 4 "Eligibility check".

For this paper, the protocol described in Figure 1 was adopted.

Figure 1: The Research Protocol

Source: Authors

The systematic review of existing literature until the year 2011 has been conducted concerning Local Food Systems and Short Food Supply and published in JRC SCIENTIFIC AND POLICY REPORTS: Short Food Supply Chains and Local Food Systems in the EU. A State of Play of their Socio-Economic Characteristics (Kneafsey et al, 2013). Regarding that, in this paper, the focus will be on articles published in the period from 2012 to 2023.

2.1. Phase 1: Research question identification

The first step of this literature review was to determine the scope of this paper, and what means to identify specific and valid research questions. The definition of the research questions is of strategic importance for the following steps of the review process: the research questions drive the identification of the inclusion criteria, the selection of relevant papers, the decision on what data to extract and how to analyse and synthesise them (Paciarotti and Torregiani, 2020, 8).

The focus of the paper is on the benefits of Short Food Supply Chains / Local Food Systems to sustainability and local (regional/rural) development. Based on that, it tries to answer the following research questions:

RQ1: What is the scientific community's interest in sustainability aspects of Short Food Supply Chains / Local Food Systems?

RQ2: What is the distribution of papers over the publication years?

RQ3: What are the predominant science categories, publication titles and most cited authors and articles?

RQ4: How did academics face the challenge of measurement/assessment of sustainability aspects of Short Food Supply Chains / Local Food Systems?

RQ5: How did academics face the challenge of sustainability of Short Food Supply Chains / Local Food Systems and territorial (rural/regional/local) development?

2.2. Phase 2: Records identification

For this paper, the electronic database source for the identification of relevant literature was the Web of Science database (WOS).

WOS platform allows one to track ideas across disciplines and time from almost 1.7 billion cited references from over 155 million records, covering over 34,000¹ journals.

The search strings used to search in the databases were "short food supply chain" OR "local food systems".

Three filtering phases were carried out. In the first phase, the following set of criteria was applied.

- Keywords: short food supply chain* OR local food system*
- Language: English;
- Source types: Research papers published in journals;
- Publication years: 2012-2022.

Using an asterisk (*) serves to broaden a search by finding a word that starts with the same letter.

Based on applied criteria 500 publications were selected from the Web of Science Core Collection.

2.3. Phase 3: Refinement

In the second filtering phase within 500 selected results, additional criteria of *sustainability* are applied. Within this search 208, selected results are obtained.

2.4. Phase 4: Eligibility check

This phase of the selection was based on the full-text reading. Based on that 71 studies were included in the literature review.

3. Results

This section presents and discusses the findings of the conducted review. Search for relevant literature is done in three filtering phases carried out. As result 77 studies are in the literature review included.

Quantitative evidence of the study was analysed considering the following issues:

- Publication by years;
- Research area analysis;
- Publication titles;
- Most Cited Articles and Authors.

Regarding the distribution of articles according to publication year, the records show continuous growth in the observed period, from 0 in 2012 to 16 in 2022.

Figure 2: Distribution of publications by years

Publication Years	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Number of Articles	16	14	12	14	4	2	4	3	1	1	0

Source: WOS

¹ (<https://clarivate.com/webofsciencegroup/solutions/webofscience-platform/>)

Ten predominant scientific areas in the Short Food Supply Chain / Local Food System search are Green Sustainable Science Technology 27 (38,028%), Environmental Studies 24 (33,803%), Environmental Sciences, 23 (32,394%), Agriculture Multidisciplinary 11 (15,493%), Agricultural Economics Policy 9 (12,676%), Agronomy 7 (9,859%), Food Science Technology 5 (7,042%), Geography 5 (7,042%), Urban Studies 4 (5,634%), Regional Urban Planning 3 (4,225%).

Table 1: The Top 10 Journals Containing Short Food Supply Chain*, Local food system*; Sustainability*

Rank	Source titles	Record count
1	SUSTAINABILITY	20
2	AGROECOLOGY AND SUSTAINABLE FOOD SYSTEMS	4
3	JOURNAL OF AGRICULTURE FOOD SYSTEMS AND COMMUNITY DEVELOPMENT	4
4	BRITISH FOOD JOURNAL	3
5	RENEWABLE AGRICULTURE AND FOOD SYSTEMS	3
6	AGRICULTURE AND HUMAN VALUES	2
7	AGRICULTURE BASEL	2
8	ENERGIES	2
9	FRONTIERS IN SUSTAINABLE FOOD SYSTEMS	2
10	JOURNAL OF CLEANER PRODUCTION	2

Source: Web of Science

The abbreviated list of the first 10 examined articles and authors ranked by citation count is available in Table 2.

Table 2: List of 10 most cited Articles and Authors

Rank	Title	Total citations
1	The sustainability promises of alternative food networks: an examination through "alternative" characteristics; Forssell&Lankoski ; Mar 2015, AGRICULTURE AND HUMAN VALUES	172
2	Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains; Malak-Rawlikowska 2019, SUSTAINABILITY	85
3	Short Food Supply Chains (SFSC) as Local and Sustainable Systems Jarzebowski et al, 2020, SUSTAINABILITY	57
4	Short Food Supply Chains and Their Contributions to Sustainability: Participants' Views and Perceptions from 12 European Cases Vitterso et al, 2019, SUSTAINABILITY	53
5	Putting the seafood in sustainable food systems Olson et al, 2014, MARINE POLICY	53
6	Sustainability assessment of last-mile logistics and distribution strategies: The case of local food networks Melkonyan et al, 2020, INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS 228	50

Rank	Title	Total citations
7	Do community supported fisheries (CSFs) improve sustainability? McClenachan et al, 2014, FISHERIES RESEARCH 157	43
8	Life-cycle energy assessment and carbon footprint of peri-urban horticulture. A comparative case study of local food systems in Spain Perez-Neira, &Grollmus-Venegas, 2018, LANDSCAPE AND URBAN PLANNING 172	40
9	Exploring the Role of Farmers in Short Food Supply Chains: The Case of Italy Mastronardi et al, 2015, INTERNATIONAL FOOD AND AGRIBUSINESS MANAGEMENT REVIEW	36
10	Producers' and Consumers' Perception of the Sustainability of Short Food Supply Chains: The Case of Parmigiano Reggiano PDO Mancini et al, 2019, SUSTAINABILITY	33

Source: Web of Science

In Table 3 an overview of papers that contain answers to research questions four and five is provided.

Table 3: List of articles focused on measuring/assessing sustainability and rural/regional/local development

Rank	Title	Authors	Total citations
I. MEASURING/ASSESSMENT SUSTAINABILITY			
1	Measuring the Economic, Environmental, and Social Sustainability of Short Food Supply Chains	Malak-Rawlikowska et al, 2019	85
2	Sustainability assessment of last-mile logistics and distribution strategies: The case of local food networks	Melkonyan et al, 2020	50
3	Do community supported fisheries (CSFs) improve sustainability?	McClenachan et al, 2014	43
4	Life-cycle energy assessment and carbon footprint of peri-urban horticulture. A comparative case study of local food systems in Spain	Perez-Neira et al, 2018	40
5	Are Short Food Supply Chains More Environmentally Sustainable than Long Chains? A Life Cycle Assessment (LCA) of the Eco-Efficiency of Food Chains in Selected EU Countries	Majewski et al, 2020	18
6	Sustainability, Innovation and Rural Development: The Case of Parmigiano-Reggiano PDO	Arfini et al, 2019	15
7	Organic vegetables from community-supported agriculture in Italy: Emergy assessment and potential for sustainable, just, and resilient urban-rural local food production	Cristiano, S., 2021	12
8	Analyzing Alternative Food Networks sustainability in Italy: a proposal for an assessment framework	Mastronardi et al, 2019	11
9	Benefit Optimization of Short Food Supply Chains for Organic Products: A Simulation-Based Approach	Tundys et al, 2020	11
10	Do direct market farms use fewer agricultural chemicals? Evidence from the US census of agriculture	Schoolman, 2022	10
11	Exploring the feasibility of introducing electric freight vehicles in the short food supply chain: A multi-stakeholder approach	Galati et al, 2021	9

Rank	Title	Authors	Total citations
12	Local or global: A biophysical analysis of a regional food system	Kissinger et al, 2019	9
13	Toward a community impact assessment for food policy councils: Identifying potential impact domains	Calancie et al, 2018	8
14	Does direct farm marketing fulfill its promises? Analyzing job satisfaction among direct-market farmers in Canada	Azima et al, 2022	3
15	A Life Cycle Assessment Approach for Vegetables in Large-, Mid-, and Small-Scale Food Systems in the Midwest US	Stone et al, 2021	3
16	San Jose Food Works Study: Demonstrating the Economics of Local Food Systems Toolkit methodology	Kraus et al, 2019	2
17	Transitioning the agri-food system. Does closeness mean sustainability? how production and shipping strategies impact socially and environmentally. Comparing Spain, South Africa and US citrus fruit productions	Munoz Torres et al, 2022	1
18	Social impact and sustainability in short food supply chains: An experimental assessment tool	Corvo et al, 2021	1
19	Classifying New Hybrid Cooperation Models for Short Food-Supply Chains-Providing a Concept for Assessing Sustainability Transformation in the Urban-Rural Nexus	Martens et al, 2022	0
20	Investigating Predictors of Public- and Private-Sphere Sustainable Behaviours in the Context of Agritourism	Brune et al, 2022	0
II. RURAL/REGIONAL/LOCAL DEVELOPMENT			
1	Short Food Supply Chains and Their Contributions to Sustainability: Participants' Views and Perceptions from 12 European Cases	Vitterso et al, 2019	53
2	Producers' and Consumers' Perception of the Sustainability of Short Food Supply Chains: The Case of Parmigiano Reggiano PDO	Mancini et al, 2019	33
3	Sustainability, Innovation and Rural Development: The Case of Parmigiano-Reggiano PDO	Arfini et al, 2019	15
4	Rome, a Policy without Politics: The Participatory Process for a Metropolitan Scale Food Policy	Mazzocchi et al, 2020	13
5	Exploring the feasibility of introducing electric freight vehicles in the short food supply chain: A multi-stakeholder approach	Galati et al, 2021	9
6	Creole Hens and Ranga-Ranga: Campesino Foodways and Biocultural Resource-Based Development in the Central Valley of Tarija, Bolivia	Turner et al, 2016	8
7	A Methodological Approach to Upscale Toward an Agroecology System in EU-LAFSs: The Case of the Parma Bio-District	Guareschi et al, 2020	7
8	At the heart of controversies Hybrid forums as an experimental multi-actor tool to enhance sustainable practices in localized agro-food systems	Amilien et al, 2019	4
9	SUSTAINABILITY OF SHORT FOOD SUPPLY CHAIN SYSTEM IN EUROPE: A SWOT ANALYSIS	Casolani N., et al, 2015	4
0	SHORT FOOD SUPPLY CHAINS AS DRIVERS OF SUSTAINABILITY IN RURAL AREAS	Todorova, S. et al, 2020	3
11	Short Food Supply Chains and Small Farms-Evidence from Slovakia	Floris, et al 2022	2
12	Systemizing a rural livelihood diversification framework for sustainable community-based agritourism: A participatory approach to ensure resilience	Cavalleri et al, 2022	0
13	Sustainable local development and agri-food system in the post Covid crisis: The case of Rome	Cavallo et al, 2022	0

Rank	Title	Authors	Total citations
14	Strategies for the valorization of sustainable productions through an organic district model	Guareschi et al, 2023	0
15	THEORETICAL APPROACH WITH REGARD TO THE MAIN BENEFITS OF SHORT SUPPLY CHAINS. FOCUS ON SMALL PRODUCERS AND LOCAL COMMUNITIES	Tanasa et al, 2022	0
16	FOOD HUBS IN ROMANIA ASSESSMENT OF A PILOT PROJECT	Havadi and Kinga, 2021	0

Source: Web of Science

In conducted literature review 20 articles focused on measuring/assessing sustainability are found. The table shows that the studies dealing with measuring/assessing impact of sustainability aspects of Short Food Supply Chains / Local Food Systems are more recent. Namely, only one paper in the table was published before 2018, and 60% of the papers were published from 2020 onwards. With the impact of SFSCs on rural development are dealing 16 articles. Most of them, 56,25% are published 2020 onwards. The above indicates that in the last three years, the interest of researchers in the impact of SFSCS on sustainability and local development, as well as the measurement of this impact, has been on the rise.

4. Discussion

This study summarises the literature related to SFSCs and the three pillars of sustainability, with a special focus on measuring/assessment of their impacts, and their connection to territorial (rural/regional/local) development.

4.1. Economic Sustainability

In this section are shown the economic impacts identified from the literature review. The results of two conducted studies carried out in the framework of Horizon 2020 are summarized in Table 4.

Table 4: Comparison of research results on economic sustainability assessment of two projects carried out in the framework Horizon 2020 STRENGTH2FOOD and SKIN

STRENGTH2FOOD		SKIN	
Indicators	Impact	Indicators	Impact
Price difference Farmgate (EUR)	Better prices are achieved by producers, as the average values of	Profitability	Reduction of farmers' economic uncertainties.
Price Premium (%)	'price premium' and 'chain value added' indicate;	Generating local employment	Support the profitability of small and medium farms.
Chain value added (EUR) and Chain value added (%)	The average Price Premium in SFSC was 72.2% compared with 16.7% in LFSC; Chain value added was the highest in	Reduced economic uncertainties	Increase the re-circulation of community income.
		Training and coaching initiatives	Creation of new jobs in rural areas (generating local employment).
		Synergies with other sectors	Decrease production costs and market price.
		Markets/events/initiatives for multiple producers locally	Improving synergies with other sectors.

STRENGTH2FOOD		SKIN	
Indicators	Impact	Indicators	Impact
	cases of sales to farmers' markets (57.7%) and pick-your-own sales (54.7%).	Preservation and valorization of small farms	Increase food production quality. Contribution to European food safety

Source: STRENGTH2FOOD (Malak-Rawlikowska et al; 2019, 8,13), SKIN (Jarzebowski et al, 2020, 8).

Both researchers have shown the economic benefits of SFSCs for producers. That is the same in other literature, some of the benefits are premium prices and bargaining power (the autonomy in price setting (Vittersø et al, 2019, 25).

4.2. Social sustainability

In this section are shown the social impacts identified from the literature review. The results of two conducted studies carried out in the framework of Horizon 2020 are summarized in Table 5.

Table 5: Comparison of research results on social sustainability assessment of two projects carried out in the framework Horizon 2020 STRENGTH2 FOOD and SKIN

STRENGTH2FOOD		SKIN	
Indicators	Impact	Indicators	Impact
Labour to production ratio (h/kg) Gender equality (%) Bargaining power Chain evaluation	Ratio Labour in almost all SFSCs the ratio is much higher, compared to long chains; The gender equality ratio is greater in short chains, for most of the studied countries, except for Hungary and Vietnam; The following criterion favours SFSCs: good rices, labour requirements, and payments, I like it. (SFSCs 3,64 vs. LCs 3,50).	The connection between producers and consumers Trust, sense of community Community pride and animation Recognition of producers Consumer empowerment Well-being	Promotion of more direct relations between producers and consumers. Enhance trust within the value chain. Foster social inclusion. Revitalization of local communities. Contribution to rural development (particularly in marginal areas). Awaken the sense of community. Conducting community education. Consumer empowerment. Bigger recognition of producers. Dissemination of training and coaching activities. Promotion of a healthy diet.

Source: STRENGTH2FOOD (Malak-Rawlikowska et al; 2019, 8,16), SKIN (Jarzebowski et al, 2020, 6,7)

The social benefits are confirmed by both researchers. Also, it is confirmed by other studies that: promote gender balance due to greater employment of women (Azima et al; 2022, 27, 28, 29); the farmers felt empowered to make their own decisions about the way they operated their

farming enterprise (O’Kane and Wijaya, 2015, 1146). Furthermore, the relationships between stallholders and between stallholders and their customers were based on trust and relations of regard, which showed the potential for farmers’ markets to contribute to elements of social capital, such as social cohesiveness, respect, and reciprocity. (O’Kane and Wijaya, 2015, 1146). The consumer and the producer perceive that SFSC contributes to closer communication and increased collaboration which strengthens local identity and community building. (Vittersø et al, 2019, 27).

4.3. Environmental Sustainability

In this section are shown the environmental impacts identified from the literature review. The results of two conducted studies carried out in the framework of Horizon 2020 are summarized in Table 6.

Table 6: Comparison of research results on environmental sustainability assessment of two projects carried out in the framework Horizon 2020 STRENGTH2 FOOD and SKIN

STRENGTH2FOOD		SKIN	
Indicators	Impact	Indicators	Impact
Food Miles Total (km/kg) Carbon Footprint	The highest value of food miles characterizes chains with the highest level of participation of consumers in transportation linked with the smallest quantities transported (pick-your-own, on farm-sales). The third largest is the food miles indicator for sales on farmers’ markets; The value of carbon footprint for short chains is greater (0.266 kg CO ₂ eq/kg) than for long chains (0.146).	GHG emissions Energy use and carbon footprint Ecological soundness of production methods Food miles Food waste	Reduction of resource use (such as fossil fuel or packaging). Reduction of food waste and saving food. Promotion of less polluting production methods (e.g., organic farming). Reduction of GHG emissions and carbon footprint. Reduction of energy use. Reduction of food miles.

Source: STRENGTH2FOOD (Malak-Rawlikowska et al; 2019, 8,13), SKIN (Jarzebowski et al, 2020, 6,7)

In the study of Malak-Rawlikowska et al (2019, 20) states the results indicate, that SFSCs generate greater environmental externalities when the focus is on carbon footprint, which seems to be the most adequate to address distribution-oriented environmental concerns. Short food chains where customers come to a production place (farm) independently of each other (pick your own, on-farm sales) and so incur costs of transport and opportunity cost of their time. Similar results are reported by Mancini et al (2019,17). Also, Malak-Rawlikowska et al (2019, 13) state that the highest value of food miles characterizes chains with the highest level of participation of consumers in transportation linked with the smallest quantities transported (pick-your-own, on farm-sales).

Majewski et al, (2020, 19) state that the results of their study reject the popular assumption that short food supply chains are more eco-efficient than long chains. A key reason for this is due to their specific features, such as the transport distance and the amount of goods per individual delivery.

On the other hand, Jarzebovski et al (2020, 12) state that in the 27 case studies less energy use and carbon footprint are found. Results of their research indicate that the environmental dimension is supported by ecological production methods, the decrease of GHG emissions,

food miles, energy use and carbon footprint, and food waste in comparison to conventional food chains. McClenchan et al (2014, 66) in their research have identified five ways in which CSFs reduce environmental impacts associated with fisheries: develop the market for bycatch and waste products, create markets for underutilized, abundant species, create local demand for the product otherwise exported or imported, use of lower impact gear, education and collaboration.

Mastronardi et al (2015, 117) state the following environmental benefits: a good level of crop diversification; the areas with permanent meadows and pastures are even more substantial; forest areas, on the other hand, affect the surveyed areas less; farmland falling within protected areas is even less, there is a positive impact on the relationship between farming and environmental protection, especially when considering that the persistence of agricultural production processes is positive for the environment and biodiversity in these areas. The farms are located near the main markets, and the average distance from the market is about 25 km.

Vittersø et al (2019, 26) found that SFSCs are perceived as more environmentally friendly than distribution through long supply chains. Also, they similarly found that the main motivations among farmers within these innovative SFSCs were related to ethical and environmental values and the possibilities to explicitly communicate these credence qualities to consumers.

4.4. Territory and Short Supply Chains / Local food systems

A useful conceptualization of the interaction between the territory and the value chain is the local agri-food system (LAFS). The LAFS concept is similar to the ID since it is considered a multi-dimensional concept able to raise the competitiveness of the territory by forging opportunities with a focus on sustainability. Hence, LAFSs and IDs represent models of economic growth, social development and environmental management (Arfini et al, 2019, 2). The COVID-19 pandemic has highlighted the social and environmental unsustainability of an agri-food system dependent on global, industrial and corporate-led supply chains. (Zollet et al, 2021, 18). According that Arfini et al (2019, 14) state that some of the solutions are proposed by grassroots actors. His research shows how they far from being just the result of shock mitigation intentions, were also driven by a transformative aspiration: they are not just short-term responses to a crisis but contain elements that could be harnessed and scaled up for a faster transition towards more sustainable agri-food systems.

The analysis of the evolution of the sustainability of the Parmigiano Reggiano PDO LAFS shows different aspects: i) sustainability is a complex concept that requires the synergic use of a set of indicators finalized to catch the direction and the size of the evolution of the system; ii) considering the GIs system, the analysis of the sole value chain does not contemplate the role played by the territories in a sustainable logic; iii) innovation is a powerful tool to improve competitiveness and resilience, but might have a potential effect on the entire LAFS sustainability and the process of rural development, that in turn, links production and territory in a development policy. (Arfini et al, 2019, 14).

Cities all over the world are only just starting to develop LFSs. Analysis indicates that when a government at a local level can benefit from an energetic society, as is the case in Ghent, an LFS can be a valuable social foundation for its sustainability policy (Crivits et al, 2016).

Mazzocchi et al, (2021, 20) point out bio-districts because they are new governance tools that, most likely, will further be implemented, thanks to the new legal framework of Reg. (EU) No 848/2018 that will be effective from 2022. The main results regard agricultural and socio-territorial factors, because the presence of PDO-PGI productions, Direct selling in farms and the presence of LAGs are related to the rising of a bio-district.

5. Conclusion

This paper summarises the literature on SFSCs and three pillars of sustainability and its connection to territorial (rural/regional/local) development. It is noticed that interest in that topic is rapidly growing. As can be seen from Table 3, of most articles related to the assessment of sustainability 80%, (16/20) are published from 2018 through 2020, also 88% of articles (14/16) connected with territorial development are from that period. There is a strong indication that SFSCs have positive impacts on economic and social sustainability. The impact on environmental sustainability is questionable regarding carbon footprint and food miles total. Namely, in two studies, Malak-Rawlikowska et al (2019) and Mancini et al (2019), are evidence of a negative impact on them. In another study, Jarzebovski et al (2020) state that in the 27 case studies, less energy use and carbon footprint are found. In some studies, there are other environmental benefits found such as are environmental benefits of crop diversification, there are identified five ways in which SFSCs reduce environmental impacts associated with fisheries. Moreover, it is found that SFSCs are perceived as more environmentally friendly than distribution through long supply chains

The positive impact of SFSC/LFS on territorial development is shown in the case of Parmigiano Reggiano PDO LAFS.

Also, they similarly found that the main motivations among farmers within these innovative SFSCs were related to ethical and environmental values and the possibilities to explicitly communicate these credence qualities to consumers. Other research shows that concerning the dimensions of sustainability, the values of the indicators show how farms are more sensitive to environmental and economic aspects, rather than to social ones. Based on the analysis of the different papers considered, the following broader areas are suggested for further investigation which may lead to promising results:

1. Optimisation of distribution in SFSCs to address distribution-oriented environmental concerns - SFSCs generate greater environmental externalities when the focus is on carbon footprint, which seems to be the most adequate to address distribution-oriented environmental concerns. Short food chains where customers come to a production place (farm) independently of each other (pick your own, on-farm sales) and so incur costs of transport and opportunity cost of their time. The suggestion in the literature is that round trips which can be organized for home deliveries can provide potentially some savings in overall travel distance as if the farmer delivers produce to customers. This could result in a considerable reduction in overall time and distance travelled by customers to come to collect it and consequently decrease carbon footprint.
2. The economic impact of SFSCS on the local area using assessments indicators – some authors point out the Local Multiplier indicator.
3. New (additional) pillars of sustainability – in some studies is suggested to introduce the new pillar – governance and the cultural dimension of sustainability is also mentioned.

Through this literature review, it is noticed increasing interest in researching decreasing the social and environmental unsustainability of an agri-food system and dependency on global, industrial and corporate-led supply chains. There are research topics like responding to the COVID-19 pandemic, community resilience of LFS, etc.

Thanks to the new legal framework of Reg. (EU) No 848/2018 that will be effective from 2022 some authors point out that bio-districts are new governance tools. Finally, it seems from the literature review that new topics of research interest can be bio-districts.

This paper has a following limitation that need to be addressed by future research. Since the research is based on the results of only one scientific platform and database Web of Science, it may be expanded to more platforms or databases (such as SCOPUS, Academic Search Ultimate, Business Source Ultimate etc.) in order to obtain a larger scope. The authors probably

limited some set of papers that could contribute to the research topic and to the results given the scope of the search.

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A scientific paper

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DIGITAL TRANSFORMATION OF EDUCATIONAL SYSTEM IN CROATIA

ABSTRACT

To effectively create a digital environment in which young people are raised today, it is crucial for educational professionals to get familiar with technology features. The Croatian academic and research network initiated a pilot project in 2015 named "e-Schools: Establishment of the System of Digitally Mature Schools" in response to the growing recognition in Europe of the need for digital transformation of educational systems. Among other things, this pilot program debuted the e-Diary service. So, the main research aim of this paper is to investigate Croatian educational system's digitization based on primary and secondary data with a special emphasis on the e-Diary service. First, methodology includes the analysis of secondary data in order to generate the report that presents and discusses the e-Schools program's outcomes. The report also clarifies the features of the e-Diary. Second, methodology includes the analysis of the results obtained from the empirical research that was carried out among teaching staff in Croatia in 2022. The objective is to determine respondents' opinions of the e-Diary. The survey is divided into 4 parts and has a total of 28 questions. The sociodemographic information about the respondents is covered in the first section of the survey. The second section consists of well-thought-out inquiries regarding the e-Diary. The final section of the survey asks respondents to rate their personal level of IT literacy and digital literacy as well as the level of digital preparedness of the schools where they work. The collected data are analysed using SPSS. According to this study's findings, the introduction of the e-Diary service and e-Schools program led to a new, higher level of digital maturity and readiness in the schools, as well as in the respondents' own digital abilities and IT literacy. A positive shift is also visible in the equipping of schools with IT infrastructure. By analysing the responses, it is possible to provide suggestions for furthering the digital transformation of the Croatian educational system.

Key words: Croatia, educational system, digital transformation, e-schools.

1. Introduction

Information literacy, along with the concept of lifelong learning and education, is imperative for success in today's world. The positive interplay of these concepts is a response to the requirements and characteristics of the new modern age. Technology alone cannot change much if there is no human subject who will know how to use and direct it appropriately (Bilyalova, 2017). According to numerous authors, information literacy includes, among other things, digital media, computer, ICT and library literacy and as such is equal to the basic forms of literacy – reading, writing, mathematics (Koltay, 2011).

ICT, as a term very often used in practice, is an abbreviation for information and communication technologies that were created for the purpose of improving the exchange of

information and ways of communicating. These innovations have significantly altered and shaped the world as we know it today. ICT, according to Spremić (2017), is an umbrella word covering the software, hardware, and algorithms that the information system uses to rapidly and effectively carry out commercial activities. In addition, this group comprises all interactive devices with computer chips that can communicate (such as computers, smartphones, etc.), as well as all the tools and algorithms that enable interaction and communication between them (security protocols, software, mobile applications). Digital technologies are a subset of information and communication technologies, which they inherit all of their beneficial characteristics from. They mostly refer to the contemporary current technologies that enable digital transmission of content (Spremić, 2017).

The adoption of ICT in education has given rise to a new paradigm known as "e-learning," which involves the use of various electronic devices and incorporates computer systems into the teaching and learning process. With several new iterations, multimedia, computer networking, and software engineering have successfully replaced conventional forms and techniques of education while also transforming the learning and teaching process (Anđić, 2007). The importance of informatizing education is emphasized by Nadrljanski (2006), who also notes that it is a coherent tool that serves as the fundamental lever for social and economic progress. With the help of information technology, educational activity may be arranged into a thorough, effective system that makes it possible to track the impact and foresee the relevant outcomes at each stage of the procedure. This idea is a huge step forward for schools because it gives them the ability to become more efficient, spend resources wisely, and create new educational models that, when built upon a foundation of timely information acquisition and high-quality instruction, transform educational institutions into those that lead change.

The purpose of this essay is to discuss how digital technologies are used in education, with a focus on the educational system in Croatia. The research hypothesis states: "The introduction of the e-School and e-Diary initiatives increased schools' digital maturity, information literacy, and use of IT infrastructure and equipment".

The following is how the paper is set up: ICT, digital transformation in education systems, and information literacy are first defined; second, a literature background and the description of Croatia's e-Schools program's and e-Diary system's development are provided; third, the methodology of the empirical research of the attitudes of educational staff on the use of e-Diary is elaborated; fourth, findings are presented and discussed and, finally, a conclusion is given.

2. Literature review

Literature review chapter present the theoretical background for this paper, explains e-Schools Programme and e-Diary system initiatives and gives starting insight into empirical research of the attitudes of educational staff on the use of e-Diary.

2.1. Theoretical frame

Clark (2020) conducted nearly 85,000 interviews with teachers, principals, parents, and children as part of his study on digitally equipped primary schools in Europe and came to some intriguing conclusions. With 96% of schools having digital tools and quick Internet

connection, Iceland takes the top spot in the rankings. Cyprus and Greece, on the other hand, indicated that only 2% of their basic schools had advanced digital infrastructure. Croatia ranked last on the list at that time with an 18% share. Therefore, even if there has been progress in the implementation and digitalization of schools, many nations still have a long way to go before they are at their ideal state. Even though this subject has been discussed for a long time, extensive study has been done, and significant resources and labor have been expended, the overall picture does not indicate particularly positive outcomes. Schools must go through a number of pedagogical, organizational, and technological adjustments in order to become organizations that are prepared to deliver digitally mature and aligned education (Aksyukhin, Vyzen, Maksheneva, 2019). The effective use of information and communications technologies helps digitally mature schools achieve the following goals: efficient and transparent management of the school (direct objective); the development of digitally competent teachers ready to apply innovations in their own pedagogical practices (direct objective); and the indirect goal of developing digitally competent students ready to continue their education (Osmanbegović, Rožajac, 2013).

2.2. Development of digitally mature schools: e-Schools Programme and e-Diary system

Through a number of projects, the e-Schools program—whose full title is e-Schools: Establishing a System for Developing Digitally Mature Schools—aims to integrate ICT into the Croatian educational system between 2015 and 2023. The Croatian Academic and Research Network, or CARNet, is in charge of project coordination, and the European Union's structural funds account for the majority of the project's funding (85%) (Škole.hr, 2022). The overarching goal of the e-schools initiative is to help the primary and secondary school educational systems strengthen their capacity so that students can be better equipped for the job market, further education, and lifelong learning. The e-Schools program consists of a pilot project that was put into place from 2015 to 2018 and a large project that was put into place from 2019 to 2022 based on the pilot project's findings. The level of integration of technological tools and processes in the implementation, management, and planning of the teaching process is included in the definition of digital maturity of schools in the e-School program. The European Framework of Digital Competences for Education and the Framework for Digital Maturity of Schools were created as a part of the initiative (European Commission, 2022). School principals are required to complete an online questionnaire that contains the framework for assessing digital maturity. The questionnaire must be filled out in order for the school to accurately assess the current digital environment and to make it easier to execute additional ICT introduction steps. There was not a single school in the Republic of Croatia at the time that was digitally mature or technologically sophisticated, according to a 2016 initial evaluation of the schools that took part in the e-School pilot project. Additionally, it turned out that not a single school can be described as being technologically illiterate. In addition, the study found that more than 80% of the assessed schools fall into the category of digital beginners, while only about 20% of them have received digital training. The second phase of the e-Schools program was introduced by CARNet in September 2018 based on the experience and outcomes from the previous phase (pilot project). The second phase of the e-Schools program has the following specific goals: to provide a purposeful, dependable, and secure ICT environment suitable for schools in the Republic of Croatia; to increase the effectiveness and coherence of educational processes; to improve digital competences that contribute to schools' digital maturity; and to improve strategic leadership in schools to raise that maturity (CARNet, 2022). Principals and teaching staff, who are willing to adopt new technology, applications, and instructional methods, hold a vital role in advancing the digital maturity of schools.

The e-Diary application is one of the new technologies in the Croatian educational system whose goal was to raise the digital maturity of schools. The traditional physical class book has been effectively replaced with the electronic version, or e-Diary. All primary and secondary schools in the Republic of Croatia that are funded from the state budget and that requested the introduction of this service were able to use the e-Diary service as a result of the e-School program's implementation throughout all of its phases. Two web interfaces are available to use to access the e-Diary service: one is for teaching staff and the other is for students and parents. Both the mobile version, which can be downloaded on smartphones and tablets, and the desktop version of the application can be used. An AAI@EduHr identity is required in order to access the system. The following features are included in the e-Diary (e-dnevnik, 2022):

- Evaluation components: it allows independent inclusion of the appropriate evaluation elements, the professor adds the specifics specific to his topic(s), and the instructor adds the subject he teaches;
- Generation of reports: by selecting the option "Report for the class department," the teacher can see the grades and notes of all students without scrolling, and the teacher can print a list of students in the class according to certain criteria in PDF or Excel format.
 - Student evaluation: it enables the teacher to create the list of students in the class, allowing the teacher to select the desired student by clicking and enter notes and grades individually or as a group.
- Content adaptation for students with disabilities: By selecting the "Adjustment of content" option, a thorough description of the adaptation can be entered and saved in the system;
- Lesson record: The instructor has the choice to make a work hour (a plan for processing teaching units, a record of the lesson held), a work day (an entry of the working day, a record of absences), and a work week (a record of the school shift and pupils on duty);
- Lesson plan: the instructor can enter the teaching resources for the lessons he has downloaded from Edutori in advance while organizing and constructing a lesson plan;
- Data entry: The teacher may enter information regarding the prolonged stay;
- A summary of all activities that have been completed: The teacher, student, and parents can check the class schedule, the schedule of student assignments by semester and month, the readings and written tests, and the grades.
- Search engines, which allow teachers to look for students and class materials stored in the system;
- Records for music schools with features tailored to their curricula;
- Search engine: teacher searches for students and units placed into the system; Records for students who attend courses in the hospital; System features tailored to the implementation of the teaching program in the hospital;
- Records for music schools: it permits features tailored to their curricula;
- Student attendance records: this information enables system features to modify the curriculum.

For its users, e-Diary is a service that combines all the necessary features and information, which is one of its numerous benefits. To avoid misuse and illegal use by a third party, a very high level of data and system protection is guaranteed. The risk of theft or destruction is also reduced by the electronic book. It is linked to e-Matica so that student data is taken out of and sent back to the register at the start and conclusion of the school year, minimizing the potential of duplicate data. The ability for many teachers to view the same class book simultaneously is another benefit of the e-Diary that needs to be emphasized. Online courses, the creation of international ICT networks and projects aimed at cooperation, the development of critical thinking in the context of the application of ICT tools and methods, the creation of specialized subsystems and workshops based on learning and teaching while integrating

contemporary solutions into current systems are just a few of the pressing educational needs for teaching staff (Ratheeswari, 2018). A guidebook for using the e-Diary for schools and teachers was created in order to make it as simple as possible to introduce it to the educational system and educate all personnel with how it operates. A user guide for the e-Diary for students and parents is also available on the CARNet website. To help all users of the school system gain the information and skills they need to effectively use the e-Diary service in their everyday work, CARNet has also made webinars, online training, and workshops available.

2.3. Empirical research of the attitudes of educational staff on the use of e-Diary

1338 primary and secondary schools in Croatia actively use the e-Diary system, and 52000 instructors regularly access the program, according to the most recent official data from 2021. All Croatian schools will be a part of this digital endeavor after the second phase of the e-School program is finished in 2022/2023, and those that have an established and actively fostered ICT culture will be entitled to claim the designation of digitally mature e-Schools (CARNet, 2021). The goal of this study is to look into the e-Diary application as an example of how the Croatian educational system is being informatized and to determine the advantages of deploying this system by learning how respondents evaluate the e-Diary in light of their sociodemographic traits, digital skills, and experiences.

3. Methodology

The aim of this research is to investigate has the introduction of the e-School and e-Diary initiatives increased schools' digital maturity, information literacy, and use of IT infrastructure and equipment.

3.1. Research instrument

A Google Forms survey was distributed online with the intention of exploring the opinions of the teaching staff regarding the use of the e-Diary service. There are 28 questions in all, spread among the survey's 4 sections. The survey was given to the teaching staff of primary and secondary schools in the Zagreb region in the months of June and July 2022. Only that region was selected since most of the schools in Zagreb and its surroundings implemented e-Diary. Gender, age, duration of service, place of employment, and job title are among the sociodemographic factors that are included in the first section of the survey. The second section of the survey, which consists of 10 questions, is specifically focused on the e-Diary. Respondents are asked to rate their own degree of IT literacy and digital literacy in the third section of the survey, as well as the level of digital maturity and readiness of the schools where they work, using a Likert scale (5 questions). The fourth section of the survey had employees to respond to 8 questions on the e-Schools initiative and their use of the e-Diary. The collected data were analysed using Statistical Package for the Social Sciences software.

3.2. Research sample

There are 126 respondents in the research sample. The respondents were members of the teaching staff at primary and secondary schools in the Zagreb region.

109 (86.5%) of the total responders are women, and only 17 (13.5%) are men. Given the relatively higher participation of women among teaching staff in Croatian primary and secondary schools, the gender ratio of responses is not surprising.

In the survey that was done, respondents who are over 50 years old make up the bulk of the sample (N=45, 35.7%). They are followed by respondents who are between the ages of 40 and 50 (N=37, 29.4%), followed by respondents between the ages of 30 and 40 (N=28, 22.2%), and respondents under the age of 30 (N=16, 12.7%), who come in last. Those with 20 to 30 years of work experience make up the greatest percentage of respondents (N=32, 25.4%), followed by those with 0 to 5 years of experience (N=30, 23.8%), and then those with 10 to 20 years of experience (N=28, 22.2%). Following them are those with over 30 years of experience (N=25, 19.8%), and the final category consists of individuals with between 5 and 10 years of experience (N=11, 8.7%).

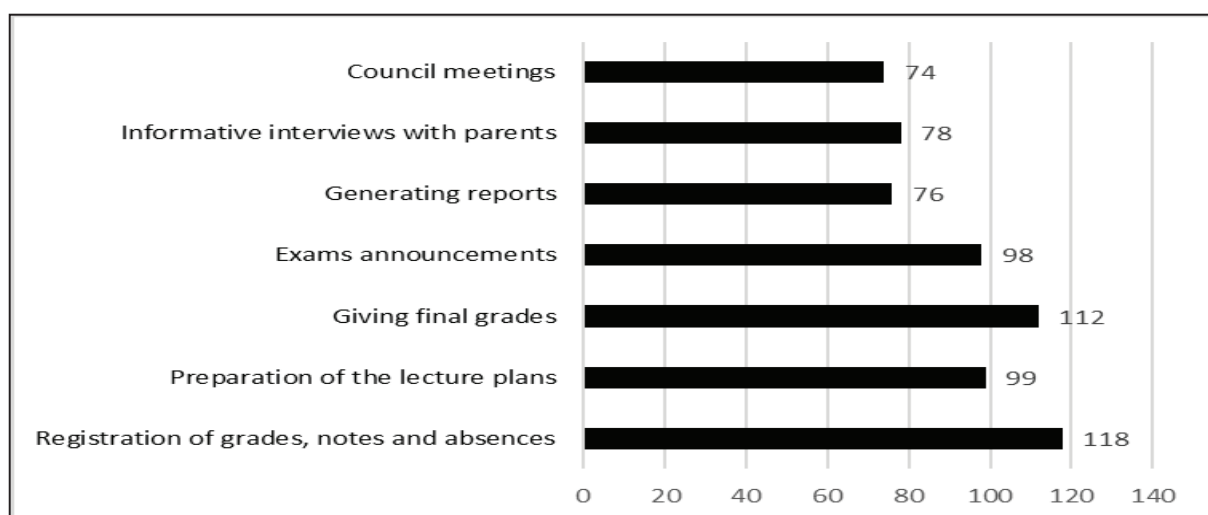
The bulk of survey respondents (68.3%, N=86) work in primary schools, while just a small portion (31.7%) of respondents are employed in secondary schools. The survey received the most responses from teachers (N=125) and one school principal (N=1).

4. Findings and discussion

The use of the e-Diary was a requirement for participation in the survey, and all 126 respondents indicated that they had used it.

Respondents use the e-Diary mostly to submit grades, notes, and absences before delivering final marks and preparing lecture plans. The announcement of written and oral tests, an enlightening conversation with parents, the creation of the appropriate reports, and, last but not least, the usage of an electronic diary for council meetings were all noted by the respondents (Figure 1).

Figure 1: The purpose of using the e-diary



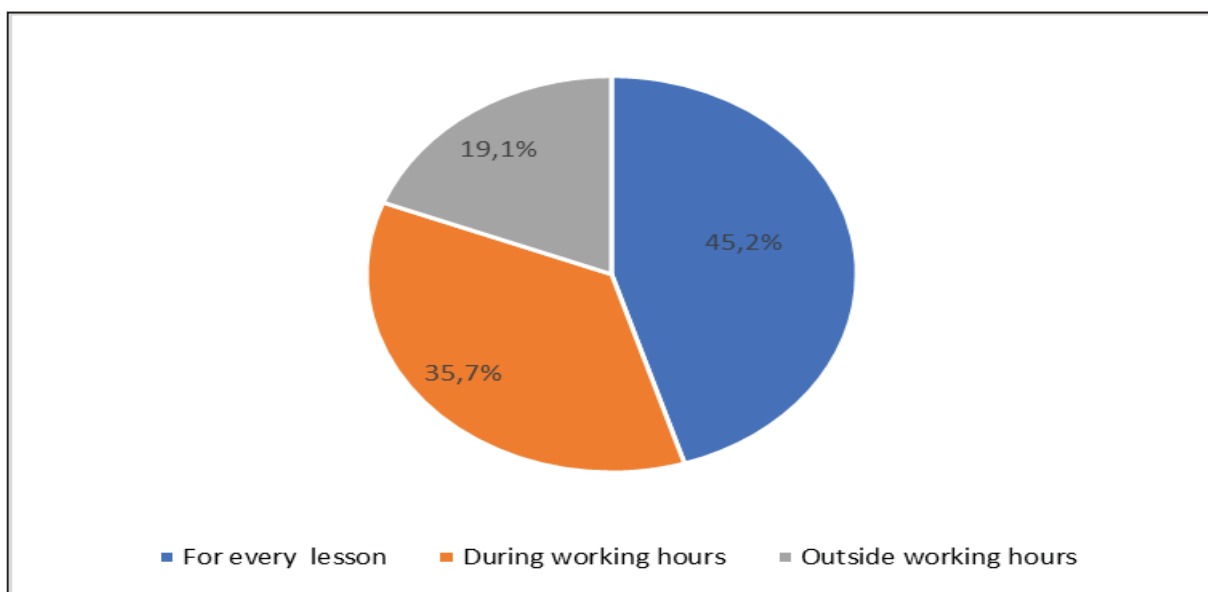
Source: Author

A laptop (90.5%) is the most common device used by respondents to access the e-Diary, which is to be expected given that it is practical and portable and offers access to work duties

from any location at any time. Desktop computers (51.6%) are in second place, and using a smartphone (22.2%) is third. The tablet is the device that respondents use the least to access the e-Diary system (8.7%).

According to 45.2% of respondents, they utilize the e-Diary system for each subject and each lesson. The availability of technical tools (laptops, desktop computers, and tablets), as well as the reliability and speed of the Internet connection, imply that educational institutions are well-equipped with ICT features and infrastructure. Depending on the circumstances, which are influenced by network performance, Internet connection reliability, and the accessibility of technical equipment, 35.7% of them indicated that the e-Diary is utilized during working hours. In order to make changes that will allow the teaching staff to use the e-Diary for every lesson, it would be beneficial to look into the root causes of the equipment's sporadic unavailability in greater detail as well as the infrastructure's functionality (whether this occurs, for instance, because not enough money was invested in the purchase of technical devices for all teachers or because of the instability of the system). Furthermore, 19.1% said they access the e-Diary from home or outside of business hours. This may be a result of the aforementioned issue, but it may also be due to the benefit of utilizing an electronic diary, which enables for work to be done at any time and from any location, so it need not be seen as a drawback (Figure 2).

Figure 2: Frequency of e-Diary usage



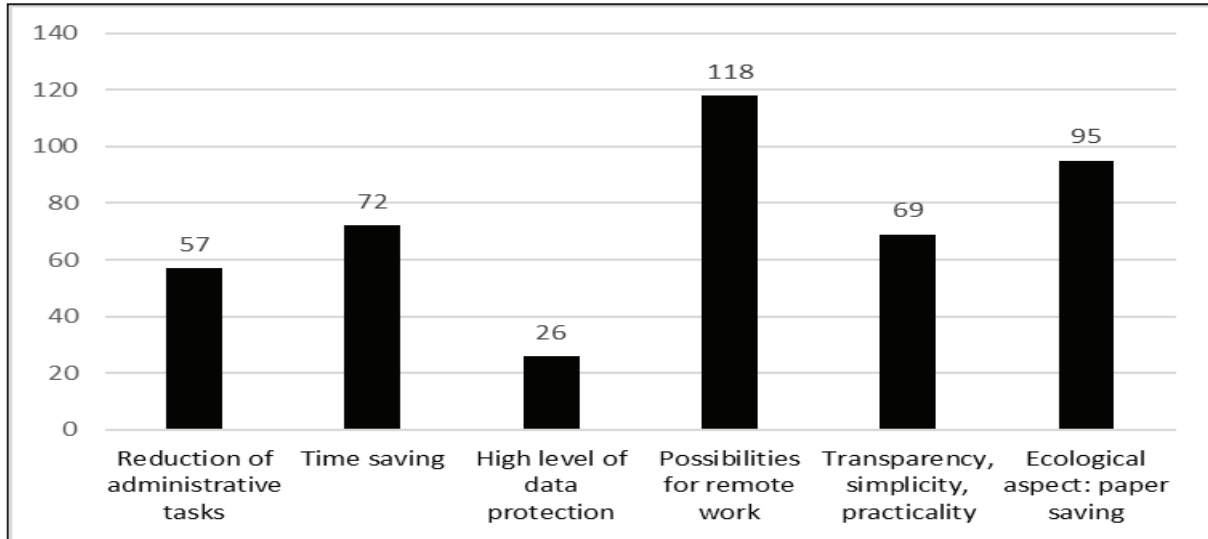
Source: Author

115 participants affirmed that using the e-Diary in their everyday job is simple and productive. The benefits connected to the usage of e-Diaries by teaching staff demonstrate how well the system has been adopted and accepted by the intended audience.

The ability to work remotely and the environmental benefit of reducing paper were determined to be the two major benefits of e-Diary. During the Covid 19 epidemic, when all of the qualities of the digital world were fully realized during the remote learning era, this convenience became even more crucial. Time saving was placed third by respondents, followed by transparency, simplicity, and usefulness. Interesting to note is that a high level of data protection and a reduction in administrative work received the fewest votes (Figure 3). E-

Diary contributes to administrative work with its alternatives, which makes it surprising that it is not recognized as such. Unfortunately, it does not completely eliminate it. Users of the system shouldn't feel uncertain or afraid about the level of data protection because the system is highly well-secured and configured so that the measures taken to secure and safeguard data prevent manipulation and misuse by third parties.

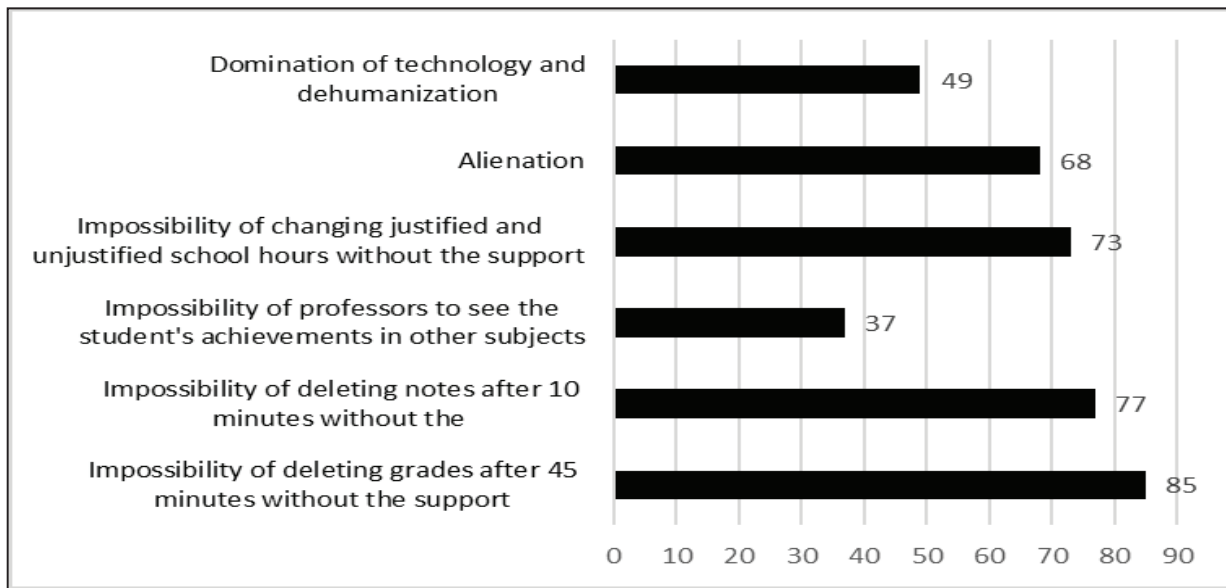
Figure 3: Benefits of adopting an e-Diary



Source: Author

The inability to delete wrongly entered grades after 45 minutes without the help of the network administrator and the inability to delete notes after 10 minutes without the same were determined to be the e-main Diary's drawbacks. The respondents concurred that the phenomenon of alienation, which results in a reduction of human contact in the form of parents attending informative interviews and their involvement in monitoring the child's school work and development, as well as the involvement of the children themselves and other colleagues, is the second disadvantage of those offered. The third disadvantage is the impossibility of changing justified and unjustified school hours without a school administrator. The smallest flaws were the domination of technology and dehumanization, as well as the difficulty for subject professors to view students' work and accomplishments in other topics (Figure 4).

Figure 4: Disadvantages of using e-Diary



Source: Author

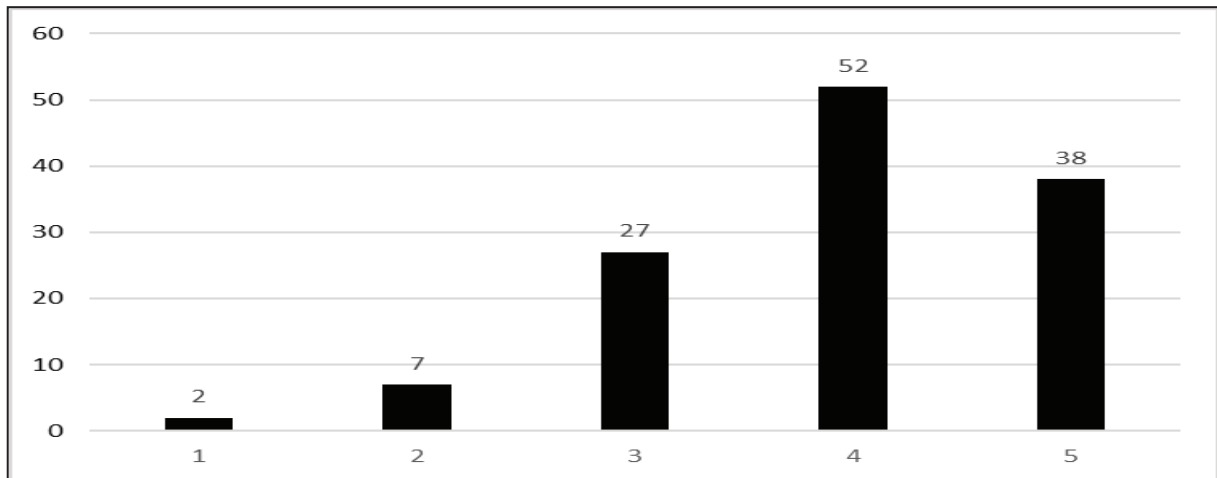
According to 18 respondents, they have access to sufficient technical assistance, IT infrastructure, and educational resources for using the e-Diary system. However, 19 of the respondents said they lacked the support, and another 27 said they weren't sure if they did. When the responses from the second and third sets of respondents are combined, a not insignificant 36.5% of them can certify that they disagree with the claim that they have the required support. To identify the root of the issue, it would be good to ascertain the causes of this. As was already noted, the e-School program places a strong emphasis on the issue of supporting program users, therefore it would be wise to determine how the program's recommendations are actually put into reality.

The most popular choice among the questioned teaching staff did not turn out to be taking part in webinars, educations, or trainings linked to using e-Diaries. A whopping 30.2% never attended any trainings, webinars, or trainings linked to e-Diary, while 47.6% occasionally engaged in trainings. This could be a concern because users need substantial training and knowledge of the system's functionality in order to operate it properly and effectively. Only 22.2% of users took advantage of all webinars, classes, and trainings offered on using e-Diary.

The majority of respondents (53.2%) think that the data and content kept in the e-Diary are adequately protected. Concerningly, a sizable part of them (38.9%) expressed uncertainty about the security of the e-Diary system. Only 7.9% of the staff members think that the e-data Diaries and content are adequately protected. It is unclear whether this is due to skepticism and antipathy toward ICT or something else, but it can be said with certainty that the system's operation is properly planned and extremely secure.

On a scale of 1 to 5 (where 1 is "insufficient," 2 is "sufficient," 3 is "good," 4 is "very good," and 5 is "excellent"), 41.3% of the participants assessed their IT literacy and skills as very good, 30.2% as excellent, and 21.4% as good before the e-Diary and e-School program. Only a tiny fraction of them (5.6%) assessed their IT literacy and skill levels as adequate and insufficient (1.6% of respondents) (Figure 5).

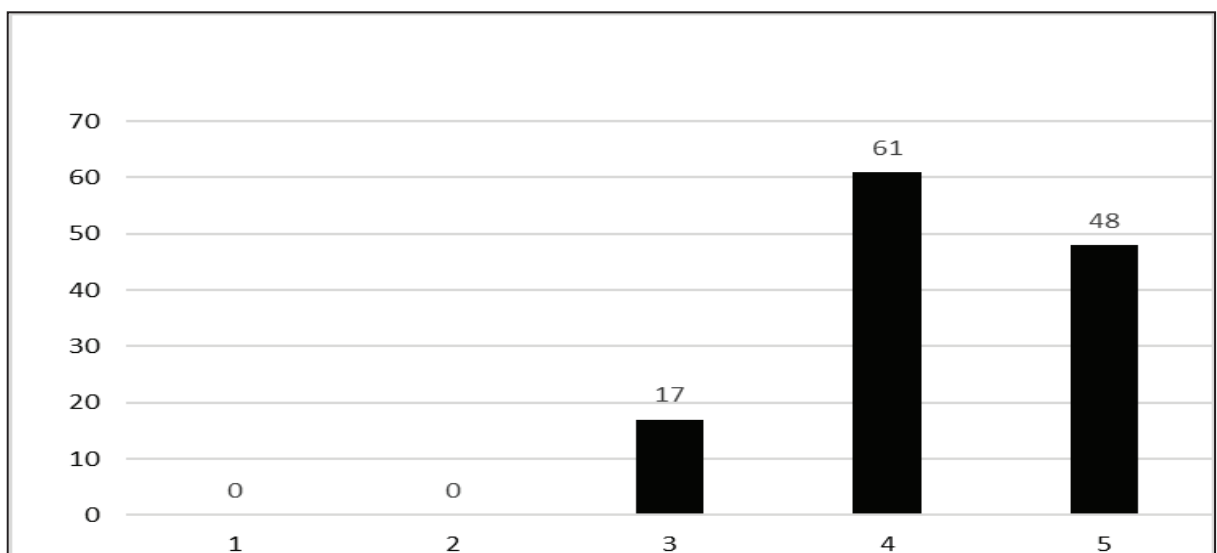
Figure 5: Digital skills and the level of IT literacy of the teaching staff before the introduction of the e-Schools programme and the e-Diary service



Source: Author

Not a single respondent assessed their digital abilities or degree of IT literacy as inadequate or sufficient after the launch of the e-School program and the e-Diary service. Again, the largest group consists of respondents who rate their post-program IT knowledge and digital abilities as very good (48.4%), followed by 38.1% of respondents who rate them exceptional, and the lowest group in this instance consists of participants who rated their skills as decent (13.5%). (Figure 6). Following the implementation of the e-School program and e-Diary service, there is a noticeable improvement in thinking patterns, identifying IT awareness, and identifying new skills.

Figure 6: The teaching staff's IT literacy and digital skills following the implementation of the e-Schools program and the e-Diary service.

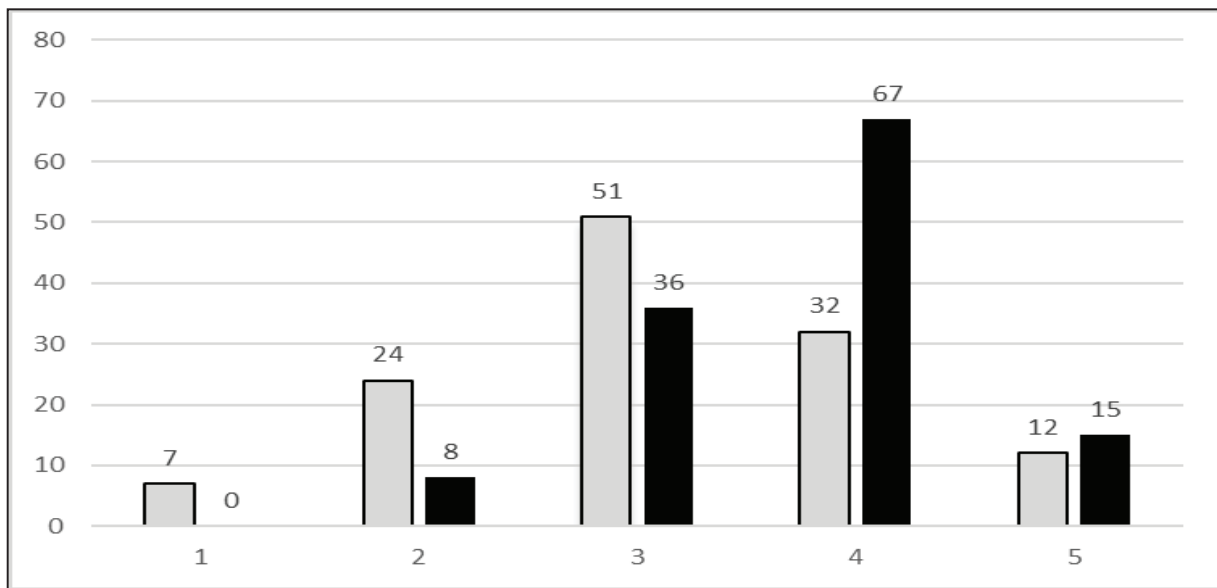


Source: Author

Prior to the introduction of the e-School and e-Diary initiatives, schools' digital maturity, information literacy, and use of IT infrastructure and equipment were most frequently

regarded as good (40.5%), followed by very good (25.4%) and sufficient (19%). 5.6% ranked them as insufficient, and 9.5% as great. After the implementation of e-Schools and e-Diary, no one evaluated the school's digital maturity and information literacy, as well as its IT equipment and infrastructure, as inadequate, which represents a highly good shift. The majority of respondents (53.2%) give them a very good rating. Participants gave them a favourable rating in a 28.6% to 11.9% ratio, with 11.9% rating it as excellent. Sadly, a very small percentage of respondents (6.3%) still consider their school's level of digital maturity and preparation to be sufficient after the introduction of changes and the adoption of innovations (Figure 7).

Figure 7: Digital maturity and information literacy of schools before vs. after the introduction of e-Schools and e-Diary



Source: Author

The e-School project and other initiatives that promote modernization and adaptation to the new realities of life and work are supported by 104 respondents (82.5%) who also believe that these initiatives have a meaningful impact on how society functions. 22 of them (17.5%) disagree, meaning they oppose modernization initiatives and programs and do not believe they alter how society runs. Investigation is still ongoing to determine their motivations. There is a chance that some people will be resistant to digitization and technology; there may be a presence of dread of the unfamiliar and new; some of them may not be open to changes and have no desire to alter traditional work habits. The majority of people recognize the benefits of such projects and programs, so because they are more numerous and powerful, they can call attention to those who hold the opposing opinion and convince them of the advantages. Unexpectedly, 15.9% of respondents said they would stop using the e-Diary and switch back to using a print course book. Considering that modernizing and digitizing the educational system has been identified as a key factor in the transformation of society and contributes to the development and growth of a digitally ready and mature communities of information literate people, the number of respondents who disagree with it is quite impressive, even though the vast majority of respondents, 84.1%, would keep the e-Diary.

5. Conclusion

Today's society learns entirely differently than it did in the past. In order to extend horizons, get new knowledge, and hone various abilities, it is now essential to comprehend, research, connect, judge, question, and constantly learn. This is the reason why formal education is an essential component of the educational process that influences learning outcomes and enhances the particular knowledge and skills necessary for the process of becoming a digitally mature environment.

Overall, the respondents' perception of e-Diary could be assessed as highly positive. The majority of them responded favourably to the concept of introducing e-Diary; they make extensive use of its capabilities and claim that doing so has a significant impact on their day-to-day work. In addition, the respondents claim that both their own level of IT literacy and digital literacy, as well as the digital maturity and readiness of the schools where they work, have increased. A favourable change is also discernible in the provision of IT infrastructure in schools that followed the launch of e-Diaries and e-Schools. The introduction of e-Diary was largely acknowledged to have had a moderate to significant impact on communication, saving time and reducing manual work, as well as the modernization and digitization of the school education system in the form of an increase in the level of IT literacy and digital maturity. It would be necessary to: enable a longer period for correcting incorrect entries (grades, notes), balance the Internet connection, and increase the availability of IT equipment at the level of each school. By analysing and identifying flaws in the system's operation, it is possible to generate recommendations for changes. Since almost a third of the respondents disagree with the claim that they have the necessary training, technical support, and IT infrastructure for using the e-Diary service and almost half of them are unsure about the protection and security of the data stored in the e-Diary system, it would be helpful to look into the factors that might be causing these attitudes. Due to the fact that the e-School program contained the education segment of system users (webinars, trainings), users may also utilize the support of the school administrator as the project manager on a regular basis. Additionally, they are always welcome to get in touch with CARNet's user assistance. Perhaps the reasons for these types of responses have to do with people's resistance to change, their desire to stick with the status quo, or even their sense of nostalgia.

Similar programs to digitize education in Europe have demonstrated how important it is to coordinate the introduction of innovations with all resources, including people, procedures, equipment, infrastructure, etc. These programs' primary objective is to improve the educational system through the effective application of information and communication technology. Clark's (2020) research on digitally equipped primary schools in Europe showed that Croatia ranked last on the list at that time. In order to ensure that the e-Schools project can be implemented in an appropriate and correct manner in order to improve the situation, it is essential that primarily the educational staff receive the full necessary education and clearly laid out work guidelines, especially those with a lower level of computer literacy and weaker digital skills. Therefore, certain parts of the e-School program would need to be revised in order to ascertain what causes the unhappiness, outrage, and lack of appreciation for the advantages of such a project, which were partially expressed in the survey. Since they are in charge of putting changes into action, program participants need ongoing assistance and support. However, they must also realize that in order to assure awareness, acceptance, and adoption of this program in future work and development, they must endeavour to integrate it into their working style.

The sample of respondents used in the research is unrepresentative of the observed population as a whole, and as such, cannot be used as a foundation for generalizing the opinions of educational professionals in Croatia on the topic. Only teaching staff who work in Zagreb and its neighbouring areas make up the very small sample of responders. Furthermore, the population of teaching staff who work in Zagreb region is 5082 and research sample is 126 respondents. In order to more precisely pinpoint the factors that underlie the respondents' attitudes, it is advised that future research of this kind include a larger sample size from a wider geographic area, separate schools by category (primary/secondary), and change the research method (depending on time/financial constraints). However, despite these limitations, it can be said that this study contributes both scientifically and practically to the topic it examines. Also, the study has proven that the introduction of the e-School and e-Diary initiatives increased schools' digital maturity, information literacy, and use of IT infrastructure and equipment.

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A scientific paper

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MOBILE DEVICES PURCHASING BEHAVIOURAL INTENTION OF THE GENERATION Z

ABSTRACT

Generation Z is a digital native generation. Their life is like an "open book". That means that anyone at any moment, with a few clicks, can find out everything about the person they are interested in through social networks where they publish all their life events. Members of Generation "Z" are visual types. Visual elements of the identity of a specific brand, such as logos, signs, colours, slogans, remain in their memory, rather than the text itself. They are well informed, more cautious and must therefore be approached with special attention through m-commerce. Therefore, the main aim of this study is to explore the knowledge based on Generation Z focused on the impacts of mobile device technology acceptance factors: perceived usefulness, innovativeness, relationship drivers, trust, anxiety, perceived ease of use and enjoyment on mobile purchase behavioural intention in m-commerce. To gain the main aim, the empirical research was conducted from 23rd March 2021 to 24th April 2021, applying a convenience sample of 215 members of the Generation Z. To reach the main aim of this paper confirmatory factor analysis (CFA) and structural equation modelling (SEM) were used. The underlying factors derived from EFA were represented as correlations among sets of several interrelated variables. The results reveal that there is statistically significant positive relationship between mobile devices purchase behavioural intention and perceived usefulness, relationship drivers, trust and enjoyment of the members of Generation Z. There is statistically significant negative relationship between mobile purchase behavioural intention of Generation Z and anxiety. There is no statistically significant relationship between mobile devices purchase behavioural intention of Generation Z regarding innovativeness and perceived ease of use.

Key words: *Generation Z, m-commerce, mobile marketing, technology acceptance model, mobile purchasing behavioural intention.*

1. Introduction

Mobile devices are currently the most favoured and used devices, not only for communication between people, but also for many other reasons. The rapid growth in the penetration rate of smartphones (6,92 billion smartphone users in 2023), with the spread of broadband connectivity, represents a driving force for e-commerce that will increasingly be supported by mobile technology (Zerbini et al., 2022). Considering the growth of the internet and mobile devices, the business environment has changed considerably in the last two decades. Mobile

devices have been used progressively for the business activities such as purchasing, selling, marketing communication and payments. Transaction through internet enabled mobile devices in recent years have showed very high growth rates. With the rise of the internet, the retail environment changed dramatically, making e-commerce and m-commerce central in the scene (Rodríguez-Torrice, 2019).

Analysing particularly mobile purchasing behavioural intention of the different generations segments plays a significant role among consumer behaviour researchers in the recent two decades due to the strong consistencies to the consumers' intention purchase behaviour in general. Singh and Jang (2020) emphasized that due to mobile devices anytime interactivity, make it possible for marketers to provide virtual product experiences. That is very important for Generation Z. Understanding Generation Z mobile purchasing intention behaviour is of great importance for marketers because on the one hand it defines this generational behaviour as consumers born as digital natives who have different technological skills and expectations. Compare this to others generations and see that it is important for the marketing segmentation and for creating specific marketing strategy for this specific marketing segment.

The main objective of this research is to enlarge the knowledge base of Generation Z about the impacts factors that influence mobile devices purchasing intention behaviour. Thus, the paper is organized into five sections. Following the introduction, section two presents a review of literature on m-commerce and mobile marketing followed by the technology acceptance model applied on Generation Z and emphasised the previous researches and determinants of consumer behavioural intention to establish the hypotheses. Part three refers to the research methodology. The results of the research are discussed in part four. Part five presents conclusions, implications, and limitations and proposed future research.

2. Literature review

Mobile devices became an important channel for marketers because of their possibility to improve one-to-one, one-to-many and mass communication favourable and efficiently (Watson, McCarthy, & Rowley 2013; Mahapatra, 2017; Chauhan & Khare, 2020; Omar, 2021). Technological advances continuously offer new possibilities for marketers to create special relations towards customers in order to create new products, service and experiences (Payne et al., 2008). Additionally, the development of m-commerce and within that mobile marketing is also large and growing (Huang et al., 2015). M-commerce, has removed significantly removed itself from more traditional platforms to sales that are accomplished through the mobile devices. Therefore, the rising acceptance of mobile devices and the intensive expansion of mobile information communication technologies have caused the need for mobile commerce (m-commerce) as a new and potential business mode. M-commerce is a business model that permits a consumer to finish all stages of a m-commercial operation using mobile devices (Barutçu, 2007). M-commerce has some basic features that distinguish it from traditional e-commerce such as ubiquity; personalisation; flexibility; dissemination; convenience; instant connectivity and location (Frolick & Chen, 2004). Special features of m-commerce are mobility and reachability, direct mobile marketing, interactivity and communication in two directions, branding, viral-marketing and time.

The usage of mobile devices has raised most of the internet transactions more than through personal computers in comparison to previous period (Kim et al. 2021). Consumers are moving from e-channels to mobile channels because of the possibility for improved quality

buying experiences, prompting traders to combine physical store atmospheres with mobile purchasing prospects in order to compete in the active and multichannel retail market (Pantano & Priporas 2016; Zariman, Humaidi, & Abd, 2022). Using just a mobile device linked to the wireless internet, potential customers can reach information without any limitations, accomplish interactions, and make decisions about their desired product or service purchasing (Mollick, 2023). M-commerce can produce important operational cost reduction, since there is no need to invest much in creating physical branches or stores to deal face-to-face with potential customers (Jahanshahi et al. 2011; Al-Azzam, & Al-Mizeed, 2021). M-commerce is usually considered as a part of e-commerce. This includes the application of wireless devices for including in m-commercial transactions (Lee, & Wong, 2016). Advantages of information communication devices technology with the rise of internet users and mobile access between consumers and market have produced an exceptional business model for customers' service which is virtually borderless (Bargavi, 2022). M-commerce proposes a completely different approach by raising the level of availability and by removing time and location barriers (Du & Li, 2019; Puiu, 2022).

The primary communication point with the intended consumers is their mobile device (Carter, 2008). Numerous mobile communication channels permit the companies to target consumers anytime and anywhere to create relationships with their current and potential customers in a more individualized and special way (Nasir, 2012; Wang et al., 2015). Consumers are in position to effortlessly access information about products before making any decision to buy the product (Smith, 2011).

Mobile marketing, within m-commerce, is one of the possibilities to raise customer relations with a brand, through textual messages, mobile marketing communication, permission-based marketing, the delivery of mobile content, user-generated content and m-commerce. It enables the systematic marketing planning, applying, realising and monitoring different aspects of business undertakings intentionally to get simultaneously consumer and sellers for the both sides positive exchange or transfer of services or products. It allows direct connection with potential customers despite their geographical position reaches favoured target markets via numerous digital marketing channels (Garg et al. 2021). Mobile marketing communications are anticipated to regularly grow, change and transform in accordance with technological changes. Mobile communication launches a direct communication among the marketer and the potential consumers (Bauer et. al., 2005). Mobile marketing actions achieved by sellers are the mobile websites formation and mobile purchasing applications enlargement, mobile customer service, email and messaging mobile devices communication, mobile advertising and couponing (Thakur, 2016; Omar et al., 2021).

A literature review on m-commerce and mobile marketing towards consumers emphasized a different number of conceptual models. They are applied and adjusted with other variables with the aim to explore different contexts or possibilities of information technology assumption and particularly the consumers' intention to accept m-commerce services and their reactions towards different determinants supporting their intention to use their mobile devices with the main purpose to buy desired products and services (Saprikis et al., 2018). Among different conceptual models, the Technology Acceptance Model (TAM) has been the mostly used and also enlarged model with regard to m-commerce acceptance and m-purchasing (Wu, Li & Fu, 2011). By far, the original model has been applied in many researches and revised. In the context of m-commerce TAM model has been applied to explore the features that influence purchasing intention on mobile devices (Wu, & Wang, 2005; Lu, & Su. 2009). The factors that generally impact behavioural intention to buy through

mobile devices are perceived risk, cost, compatibility, and perceived usefulness (Wang, Lin & Luarn, 2006). TAM is conceptual model that permits other factors to be included simply into the basic model (Hong, Thong, & Tam, 2006). Saprikis et al. (2018) have included in the basic model the standard variables of TAM (perceived ease of use, perceived usefulness and behavioural intention), but they added some new variables such as mobile skilfulness, enjoyment, anxiety, trust, innovativeness and relationship drivers that are anticipated to have impact on the mobile purchasing intention.

M-commerce, so accordingly and mobile marketing, has various impacts among different generations of the persons born within the equal period and that have similar life values and behavioural patterns. Namely, there are many differences among various generation segments due to the corresponding meanings circumstances of the members of the particular segment along with similar attributes that distinguish persons that are part of one group from the people belonging to another generation group (Hoyer & MacInnis, 2007; Yusof & Kian, 2013; Pavlic & Vukic, 2019). Generation segments are categorised by diverse lifestyle and various experiences that occur with modifications in their attitudes and life values (Parment, 2012). Presently existing generational segments determined by the born period: Silent Generation (1925-1945), Baby Boomers (1946-1964), Generation X (1965-1980), Generation Y/Millennials (1981-1996) and Generation Z/Google/Net/Digital/Post-Millennials natives born approximately after 1996 till 2010 and Generation Alpha born after 2010 (Bolton et al., 2013; Ziatdinov, & Cilliers, 2021).

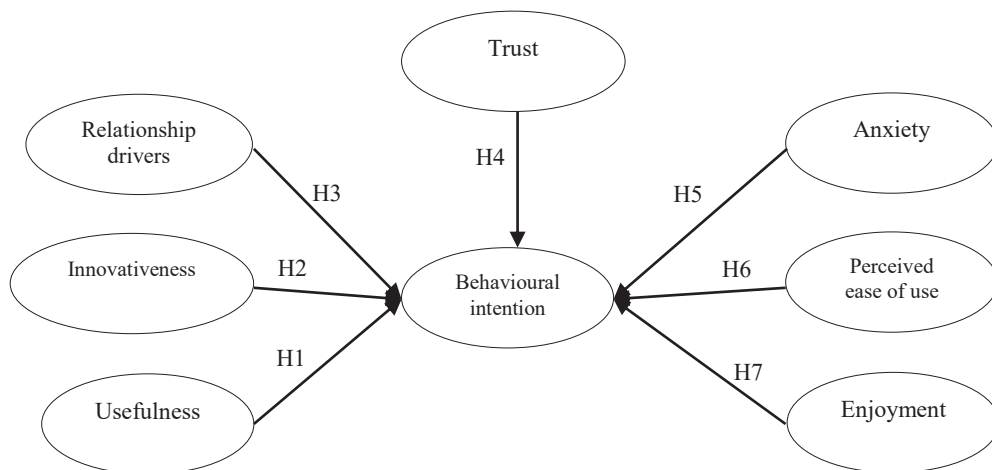
Among mentioned generations, Generation Z is included in this research because of their dynamic changes and also, there are many researches that analysed TAM model on other generations besides Generation Z (Porter & Donthu, 2006; Yang & Jolly, 2008; Pertiwi, Suprpto, & Pratama, 2020; Bae & Ju 2020). Considering the generational particularities, every generation has a specific response to the technological changes in the world. Generations that are younger are more sensitive to the information communication technology development in their standard life activities, as well as purchasing products and services by mobile devices. In comparison to older generations, Generation Z is the unique generation that can completely be presented as global. The persons who belong to Generation Z are average and highly educated. They have information technology knowledge, they are creative and innovative (Priporas et al., 2017; Nerry & Ibnu, 2020). They are deeply dependent and needful on receiving feedback. They have most information at their disposal in every moment through the social media platforms and their decisions are primarily based on inputs from feedback and online reviews (Krishen et al., 2016). They are connected to high-tech and different online information sources. They are completely digital-centric. Generation Z are therefore digital natives as they have never identified a life without the internet, different and numerous sources of information, computers, laptops, tablets and mobile devices – digital communication (Fromm & Read, 2018; Smith, 2017; Adeola et al., 2020; Reinikainen et al., 2020). Comparing with Generations X and Y, the members of Generation Z have been discovered to have more confidence in user-generated information than on other way generated information (Francis & Hoefel, 2018). This generation spent content more than any other age generations, liking and sharing material across their mobile devices daily (Djafarova & Bowes, 2020). Generation Z listens to media around nine hours a day, looks at a screen or on a device and including the time for multitasking; they are exposed to over 13 hours of media a day on average (Vitelar, 2019). They mostly communicate with images and videos, and looks for innovative content. Knowledge of the Generation Z exceeds that of older household members and can influence purchasing decisions by providing members with detailed product information, introductions to new ways of purchasing, and post-purchase

activities. Also, before buying a certain product, they analyse in detail all the characteristics of the product and their alternatives and only then decide about the product that meets their needs and preferences.

These features make it easy and interesting to research this generation's mobile purchasing intention behaviour. The following part shows an overview of the constructs which have been connected with consumer behavioural intention in m-commerce. A few studies on mobile device technology acceptance have determined the weightiness of technology in accordance to characteristics in enabling customer satisfaction. Conversely, the current research is focused on the seven factors that may have impact on consumers' intentional behaviour to adopt m-commerce: perceived usefulness, innovativeness, relationship drivers, trust, anxiety perceived ease of use and enjoyment. Hence, the hypotheses are as following:

- H1 Usefulness has a positive impact on the mobile devices purchasing behavioural intention of Generation Z
- H2 Innovativeness has a positive impact on the mobile devices purchasing behavioural intention of Generation Z
- H3 Relationship drivers have a positive impact on the mobile devices purchasing behavioural intention of Generation Z
- H4 Trust of purchasing via mobile devices has a positive impact on the mobile devices purchasing behavioural intention of Generation Z
- H5 Anxiety has a negative impact on mobile devices purchasing behavioural intention of Generation Z
- H6 Perceived ease of use of mobile devices has a positive impact on the mobile purchasing behavioural intention of Generation Z.
- H7 Enjoyment of the purchase process via mobile devices has a positive influence on the purchase intention of Generation Z.

Figure 1: Conceptual model



Source: Authors

3. Methodology

The main goal of this research is to explore the knowledge based on Generation Z focused on the impacts of mobile device technology acceptance factors: perceived usefulness,

innovativeness, relationship drivers, trust, anxiety, perceived ease of use and enjoyment on mobile purchase behavioural intention in m-commerce. With the intention of testing the constructed conceptual model, the exploratory research has been applied. An online survey was conducted in order to collect the primary data. The survey was conducted from 23rd March to 24th April 2021. The questionnaire was created applying Google form as a tool of collecting primary data. In order to receive the certain sample size of the Generation Z members, the data collection has been delivered via social media as it is the most favoured channel to reach this generation. The survey method was constructed on a convenience sampling technique (snowballing) since it was the most suitable technique considering the time and other research limitations. A weakness of this technique, which has been used is that the certain bias could provide a less representative sample but results can be indicative. This sample type can be adequate for the researches that are testing theoretical approach (Calder & Tybout, 1999). Out of 223 representatives of Generation Z, 215 adequate individual questionnaires were collected. The adequate sample contains of 215 Generation Z representatives (from Republic of Croatia). Eight questionnaires have been omitted from the additional research analysis since the standard deviation of the scale has been 0 and there were missing values (more than 5% in few questionnaires). The questionnaire was founded on previous researches acceptable for constructs validity and reliability (Saprikis et al., 2018; Kalinić et al. 2021; Sakar, Chauhan & Khare, 2020) and was also pretested before distribution. A pilot study consisted of 15 respondents assisted to detect eventually problems of clarity and accuracy. Information from respondents have important impact on improving the final constructions of the proposed items.

The first part of the questionnaire consisted of socio-demographic characteristics (gender, education, occupation and income). Second part consisted of Generation Z inhabits towards mobile purchasing and it included eight questions. The last part of the questionnaire focused on Generation Z mobile purchasing behavioural intention and constructs correlated with factor mobile purchasing behavioural intention with thirty-two items. Eight constructs have been determined using five-point Likert scale with responses on the scale from 1 (strongly disagree) to 5 (strongly agree) with the items. To be precise, the four items for every construct (mobile purchase behavioural intention – MBI, perceived usefulness – PU, innovativeness – INN, relationship drivers – RD, trust – TRS, anxiety – ANX, perceived ease of use – PEU and enjoyment – ENJ). Questions and descriptive analysis of the mobile devices behavioural intentions and other constructs can be found in Appendix I.

In order to reach the main objective, confirmatory factor analysis (CFA) and structural equation modelling (SEM) were used in this paper. The underlying constructs resulted from exploratory factor analysis were characterized as correlations among sets of eight interrelated variables. CFA with maximum likelihood estimation method was applied to determine the reliability and validity by composite reliability. Applying this method reliability of the applied methods can be indicated. Furthermore, the estimation of the goodness-of-fit guides for the recommended structural equation model and the testing hypothesis was made. All statistical methods were managed applying the SPSS 25.0.

4. Results

Table 1 presents the Generation Z members' profile. Considering the gender structure, 62,3% of the respondents were female and more than one third were male. One third of generation G participants in this research were aged between 18-20, almost 40% are between 21 and 23,

and others are from 24 to 26 years. According to their age most of them are undergraduates (40,9%), one third of them have finished secondary school and one quarter of participants primary school. Considering their occupation, approximately half of them are students and almost one third are private sector employees. Regarding their discrete personal monthly income, one third of them have less than 133€, one third have between 133,1 and 398 € and third of them have more than 398,1€.

Table 1: Respondents profile

Demographic characteristics	Generation Z	
	Frequency	Percentage
Gender		
Male	81	37,7
Female	134	62,3
Age		
18-20	68	31,7
21-23	83	38,6
24-26	64	29,7
Education		
Primary school	53	24,7
Secondary school	70	32,6
Undergraduate	88	40,9
Graduate	4	1,8
Occupation		
Student	103	47,9
Entrepreneur	6	2,8
Public sector employee	19	8,8
Private sector employee	66	30,7
Unemployed	21	9,8
Discrete monthly income		
< 133€	77	35,8
133,1-398 €	67	31,2
>398 €	71	33,0

Source: Authors

With the intention of the determination of the stability and consistency of the research instrument measures the constructs, reliability test was applied (Malhotra, 2004). For the reliability test, Cronbach's alpha reliability was used by averaging the coefficient that outcomes from all probable combinations of divided halves. According to Malhotra (2004) the coefficient varies from 0 to 1 and value of 0.6 or less commonly indicates inadequate internal consistency reliability. Table 2. Presents the reliability test of presented constructs. It can be seen that items Q4 (I recommend others to utilize m-purchasing); Q20 (My friend often ask me for advice about new technologies) and Q24 (I think that the availability to coupons' redemption from m-purchasing is important to me) decline coefficient of Cronbach's alpha of the scales and they were excluded from the further research analysis.

Table 2: Reliability assessment

Cronbach's alpha if deleted		Cronbach's alpha if deleted	
Behavioural intention $\alpha=0.854$		Usefulness $\alpha=0.847$	
Q1	0.829	Q5	0.845
Q2	0.810	Q6	0.763
Q3	0.779	Q7	0.845
Q4	0.877	Q8	0.750
Perceived ease of use $\alpha=0.850$		Relationship drivers $\alpha=0.811$	
Q9	0.783	Q13	0.771
Q10	0.760	Q14	0.665
Q11	0.768	Q15	0.640
Q12	0.872	Q16	0.668
Innovativeness $\alpha=0.836$		Trust $\alpha=0.836$	
Q17	0.811	Q21	0.852
Q18	0.758	Q22	0.845
Q19	0.756	Q23	0.829
Q20	0.888	Q24	0.867
Enjoyment $\alpha=0.876$		Anxiety $\alpha=0.883$	
Q25	0.723	Q29	0.801
Q26	0.648	Q30	0.826
Q27	0.865	Q31	0.711
Q28	0.822	Q32	0.742

Source: Authors

Exploratory factor analysis (EFA) was performed on 29 mobile purchasing behavioural intention items and others collated with this construct to check the dimensionality of all explored constructs. Subsequently measuring the reliability of the constructs measurement scales, the convergent and discriminant validity of the taken measurement scales were assessed using exploratory factor analysis (EFA) (Kline, 1998). Eight factors were determined by EFA using the principal component analysis method (PCA) method with Varimax rotation in seven rotations with 81,204% explained variance.

Table 3: Factor structure after Varimax factor rotation

	Components							
	1	2	3	4	5	6	7	8
Q1								0,729
Q2								0,856
Q3								0,795
Q5							0,645	
Q6							0,696	

	Components							
	1	2	3	4	5	6	7	8
Q7							0,839	
Q8							0,907	
Q9		0,652						
Q10		0,845						
Q11		0,860						
Q12		0,852						
Q13			0,824					
Q14			0,819					
Q15			0,885					
Q16			0,691					
Q17						0,886		
Q18						0,874		
Q19						0,702		
Q21					0,810			
Q22					0,891			
Q23					0,866			
Q25	0,794							
Q26	0,796							
Q27	0,846							
Q28	0,886							
Q29				0,866				
Q30				0,771				
Q31				0,823				
Q32				0,881				
Extraction method: Principal Component Analysis.								
Rotation method: Varimax with Kaiser Normalization.								
Rotation in seven iterations								

Source: Authors

Furthermore, the third phase of the study was accomplished. For the purpose of the testing the conceptual model, confirmatory factor analysis was carried out with the purpose of testing convergent and discriminant validity of constructs and to identify the unidimensionality of the separate construct. Results presents mostly good fit indices for the chosen sample showing that the indicators are satisfactory and provide good model fit for representatives of the Generation Z: GFI=0.922, AGFI=0.940, NFI=0.946, NNFI=0.920, CFI=0.907; RMSEA=0,046.

Further validity in a much more rigorous manner as espoused by Fornell and Larcker (1981) was examined. Average variance extracted (AVE) values indicate that all values were above suggested 0.5, ranging from 0.51 to 0.939. Hence, all the propositions for convergent validity were achieved. Table 4 presents that all square roots of AVE have been higher than the inter-scale correlations in the interrelated rows and columns. Considering all indicators, discriminant validity was sustained and there were no validity concerns.

Table 4: Convergent and discriminant validity measures

	CR	AVE	1	2	3	4	5	6	7	8
1	0,93	0,77	0,877							
2	0,902	0,696	0,545***	0,835						
3	0,914	0,727	0,441***	0,719***	0,853					
4	0,888	0,668	-0,159†	-0,271**	-0,276**	0,817				
5	0,957	0,882	0,343***	0,159†	0,207*	0,151†	0,939			
6	0,894	0,742	0,348***	0,414***	0,360***	-0,012	0,149†	0,861		
7	0,853	0,598	0,662***	0,609***	0,573***	-0,166†	0,265**	0,496***	0,773	
8	0,837	0,634	0,663***	0,611***	0,538***	-0,201*	0,203*	0,349***	0,672***	0,796

Significance of Correlations:

† p < 0.100

* p < 0.050

** p < 0.010

*** p < 0.001

Source: Authors

Considering that all indicators of the proposed model were acceptably determined, the structural model of the conceptual model was assessed. The main purpose of this stage is to present an empirical measure of the hypothesized relationships among the chosen constructs. Table 5 and Figure 2 show the regression weight estimates of the path model. Results show statistically significant positive relationship between mobile purchase behavioural intention and perceived usefulness, relationship drivers, trust and enjoyment of the representatives of the Generation Z. There is statistically significant negative relationship between mobile purchase behavioural intention of Generation Z and anxiety. There is no statistically significant relationship between mobile purchase behavioural intention of Generation Z regarding innovativeness and perceived ease of use.

Table 5: Regression Weights

			Estimate	S.E.	C.R.	P
MBI	<---	PU	0,392	0,088	4,455	***
MBI	<---	INN	0,033	0,04	0,831	0,406
MBI	<---	RD	0,137	0,033	1,133	**
MBI	<---	ANX	-0,105	0,041	-1,125	*
MBI	<---	TRS	0,273	0,059	1,235	**
MBI	<---	PEU	0,199	0,083	2,391	0,104
MBI	<---	ENJ	0,283	0,053	5,326	***

* p < 0.050

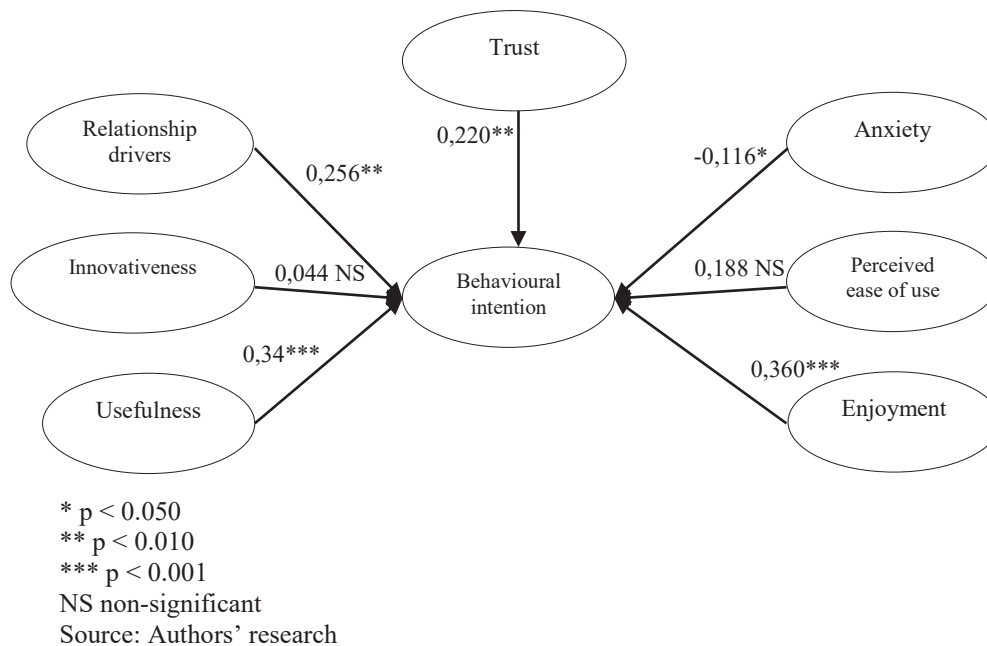
** p < 0.010

*** p < 0.001

NS non-significant

Source: Authors

Figure 2: Results for the estimated structural model for the Generation Z mobile purchasing behavioural intention



Source: Authors

5. Conclusion

This research includes the results from the previous studies on technology acceptance model based on mobile purchasing behavioural intention on Generation Z. Mostly, the research explored the impacts of mobile device technology acceptance constructs: perceived usefulness, innovativeness, relationship drivers, trust, anxiety, perceived ease of use and enjoyment on mobile purchase behavioural intention in m-commerce. All the hypothesized constructs of behavioural intention in m-commerce were statistically significant excluding innovativeness and perceived ease of use. The research implications are primarily. The study incorporates the results of previous researches comprehensive model, that sustain the assumption that mobile devices purchasing technology acceptance factors are mostly significantly related to behavioural intention in m-commerce. Considering the fact that m-commerce is regarded as a new mobile devices informational technological interface that increases operation and helps in creating long term relationship with consumers, especially with Generation Z who are very familiar with technology development, these constructs can improve companies with increasing the Generation Z purchasing intention in m-commerce.

The findings will enable companies offering m-commerce platform and mobile marketing to use the advantages of m-commerce by concentrating on important factors for the Generation Z. It is important to understand that despite the fact that the members of this generation are digital natives as they have never known a life without the internet, computers, and mobile devices, they reduce their mobile purchasing behavioural intention if they feel fear. Therefore, it is vital to reduce fear and uncertainty by providing mobile purchasing.

Nevertheless, the conclusions ought to be discussed considering their limitations. In addition, assuming that convenience (snowballing) sampling was used, the findings must be taken only as indicative ones. A limiting factor comes from the absence of researches of the mobile purchasing behavioural intention of the Generation Z especially in Croatia. The recommendation for the future research is focused on the sample that is suggested to be extended. Notwithstanding the mentioned limitations, the research can provide a framework for a better understanding of Generation Z mobile purchasing behavioural intention. Additionally, it improves the present sources by affording new insights into technology acceptance model based on mobile purchasing behavioural intention of the Generation Z.

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Appendix

Table 1: Descriptive statistics of the items

Item	Mean	Median	Mod	Standard deviation	Variance
Q1_MBI [I intend to buy via mobile devices in the near future]	3,77	4	4	1,14	1,29
Q2_MBI [I believe my interest towards m-purchasing will increase in the future.]	3,77	4	4	1,06	1,13
Q3_MBI [I intend to buy via mobile devices as much as possible]	3,56	4	4	1,16	1,35
Q4_MBI [I recommend others to utilize m-purchasing]	3,52	4	4	1,21	1,46
Q5_PU [I think you save time when buy via mobile devices]	4,10	4	4	0,98	0,96
Q6_PU [I think buying via mobile devices would increase my effectiveness.]	3,57	4	4	1,21	1,47
Q7_PU [I think buying products and services via mobile device is cheaper]	3,12	3	3	1,22	1,48
Q8_PU [I think buying via mobile devices would increase my productivity.]	3,14	3	3	1,29	1,66
Q9_PEU [I think buying via mobile devices is easy]	4,16	4	4	0,91	0,83
Q10_PEU [I think learning to buy via mobile devices is easy.]	4,28	4	5	0,83	0,70
Q11_PEU [I think finding what I want via m-purchasing is easy.]	4,06	4	5	0,95	0,90
Q12_PEU [I think becoming skilful at using mobile devices to shop online.]	4,26	5	5	0,92	0,85
Q13_TRS [I think monetary transactions in m-purchasing are safe.]	3,73	4	4	1,07	1,15
Q14_TRS [I feel my personal data are in confidence in m-purchasing.]	3,63	4	4	1,11	1,23
Q15_TRS [I feel the terms of use are strictly followed while buying via mobile devices.]	3,70	4	4	0,97	0,94
Q16_TRS [I feel m-purchasing transactions' outcome is closed to my expectations]	4,05	4	4	0,84	0,71
Q17_INN [I am usually among the first to try m-services to buy online via mobile devices.]	2,73	3	3	1,29	1,67
Q18_INN [I am eager to learn about new technologies.]	3,74	4	4	1,10	1,20
Q19_INN [I am eager to try new technologies.]	3,80	4	4	1,10	1,20
Q20_INN [My friend often ask me for advices about new technologies.]	3,08	3	3	1,31	1,71
Q21_RD [I think that the loyalty points reward from m-purchasing is important to me.]	3,69	4	5	1,17	1,37
Q22_RD [I think that the availability to coupons' redemption from m-purchasing is important to me.]	2,97	3	3	1,26	1,59
Q25_RD [I think the special offer provided only to m-purchasing are important to me.]	3,10	3	4	1,28	1,65
Q25_RD [I think that m-purchasing notifications customized to the location and time I am are important to me.]	3,19	3	4	1,32	1,75
Q25_ENJ [I think buying via mobile devices is enjoyable]	3,55	4	3	1,09	1,18
Q26_ENJ [I think buying via mobile devices is pleasure process.]	3,73	4	4	1,04	1,09
Q27_ENJ [I think buying via mobile devices is fun]	3,56	4	4	1,20	1,44
Q28_ENJ [Buying via mobile devices make me feel relax]	3,24	3	3	1,25	1,57
Q29_ANX [I afraid buying online using mobile devices]	2,01	2	1	1,15	1,33
Q30_ANX [I don't have good experience in online purchasing via mobile devices]	2,07	2	1	1,22	1,48

Q31_ANX [I hesitate to use mobile devices to shop online for fear of making mistakes]	1,98	2	1	1,16	1,34
Q32_ANX [Using mobile devices to shop online is somewhat intimidating to me]	2,03	2	1	1,14	1,31

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E-mail address: bruno.sprlje17@gmail.com**TOO MUCH OF A GOOD THING? ANALYSING SPONSORSHIP EFFECTIVENESS USING RECALL AND RECOGNITION METHOD****ABSTRACT**

Football, as a form of recreation and entertainment, attracts the attention of people around the globe, making it the most popular sport in the world. Such status unsurprisingly positions football as an ideal environment for corporate sponsorship activities. An important topic when discussing sponsorship is the question of sponsorship activities' effectiveness and efficiency from the sponsoring companies' perspective. This paper focuses on one specific aspect of the effectiveness of sponsorship - namely, the level of fans' awareness of the club's sponsors and the differences in awareness between fans who are club members and/or season ticket holders and those who are not. The empirical part of the research was conducted using recall and recognition methods with a sample drawn from the fan population of a professional Croatian football club. The research results reveal significantly higher recognition rates of club sponsors compared to recall rates. Furthermore, the top-of-mind recall was found only for those sponsors (current and former) whose name is (or was) visible on the team jerseys, thus highlighting team jerseys as the most effective activation point for the sponsor. However, data also indicate the existence of the carry-over effect long after the end of the sponsorship, which is an unfavourable outcome from the perspective of the current sponsors. Finally, club members and holders of season tickets display significantly higher recognition rates related to club sponsors when compared to the respondents who do not fall into those categories. With research data limited to only one season, future research should investigate how sponsorship awareness changes among fans over the course of a season and compare awareness between seasons with different competitive outcomes (i.e. include research from more and less successful seasons) for the club.

Key words: *sport sponsorship, football fans, recall, recognition.*

1. Introduction

Sports attract audiences' attention globally (Itkonen et al., 2009; Oral, 2018), drawing interest from people regardless of their background and becoming one of the favoured channels for various types of commercial communication. Football, in particular, is a global phenomenon

and an important part of football supporters' lifestyle, linked with heightened emotions (Biscaia et al., 2013). While, from a personal perspective, the sport has various meanings to different individuals who assign different meanings to sponsorship activities, from a business perspective, the main goal of sport sponsorship is to promote the sponsor (Oral, 2018).

The popularity of sports – professional, amateur, or recreational has increased interest in visible involvement with sports activities among various economic entities outside the world of sports. According to Shank (2014), sponsorship is a marketing exchange where one entity (sports club, individuals, etc.) receives the funds or material resources it needs. In return, the sponsor can associate with the sports entity with whom the sponsorship was agreed. In other words, sponsors provide financing and other forms of support to athletes, sports clubs or teams, and sports federations or exchange for an opportunity to use a sponsored entity in their promotional activities (Oral, 2018). Sponsorship is a long-term investment that creates lasting connections between the sponsor and the sponsored object (club, athlete, etc.) in the minds of consumers (Mazodier and Merunka, 2012; Simmons and Becker-Olsen, 2006).

Slatten et al. (2016) list four main motives for sponsorship and point out that the fundamental driver for companies to engage in sponsorship is business motive (e.g. increasing sales). Other identified motives are, in order of importance for companies: social motive (e.g. show of responsibility for the local community), bond motive (attempt to build stronger relationships with stakeholders), and clan motive (e.g. expressing dedication and care for employees). Zinger and O'Reilly (2010) additionally investigated conceptual underpinnings of sponsorship by analysing the range of opportunities available to small businesses on the philanthropy-sponsorship continuum, which includes respectively: community goodwill, public awareness of the firm, employee morale, cultivating of a new brand image, forum for product or service demonstration, entertain key clients, reach new market segments, block competition and generate new sales. Generally speaking, it can be said that companies seek to gain or improve their visibility through sponsorship (Itkonen et al., 2009).

Sponsorships are becoming one of the most important marketing tools (Dos Santos et al., 2016) and a powerful medium for marketing communication, growing much faster than conventional media advertising (Slatten et al., 2016; Koronios et al., 2019). Cornwell (2020) has identified some of the fundamental drivers of the increased importance of sponsorship as changes in consumer habits and expectations in terms of media content availability and consumption, changes and developments in information technology, and new communication goals and expectations of the companies.

The sports sponsorship market in particular is going strong - according to Statista's (2021) report, the global sports sponsorship market was estimated at 64.8 billion USD in 2021. According to current projections, annual growth is expected to average 7.5% annually, with the market value reaching 112.2 billion USD in 2030. Sports sponsorship is characterised by an increase in the frequency of exposure to marketing messages (Mason, 2005) which, in the case of good communication planning, results in favourable attitudes towards sponsoring company/brand (Zardini Filho, 2017). However, sponsorship is far from being the only choice when promotion through sports is considered. In their paper, Cheong et al. (2019) show no significant differences in consumers' attitudes toward advertising and sponsorship in sports, with similar outcomes in terms of purchase intentions.

The industries most involved in investing in sports sponsorship are financial services (6.9 billion U.S. dollars), technology (4.58), automotive (2.67), telecoms (2.55), retail (1.81), soft drinks (1.42), energy drinks (0.99), alcohol (0.62), gambling (0.48) and the airline industry

(0.33). Although sports sponsorship is undoubtedly still a very attractive sponsorship category for commercial entities, Toscani and Prendergast (2019) note that the share of sports in the sponsorship sector's global spending has been slowly decreasing for the last two decades, suggesting that other sponsorship categories (e.g. arts sponsorship) are becoming more popular. Additionally, Slatten et al. (2016) state that there are other interesting forms of sponsorship for companies, such as cultural sponsorship (e.g. art and music), socio-sponsorship (sponsorship of humanitarian organisations), event sponsorship (e.g., festivals and events) and media sponsorship (e.g., firms paying for the production of a TV program).

With all the changes in the environment, the relevance of sponsorship as a marketing tool is likely to increase further, particularly when major sports events and organisations are concerned. Numerous companies have realised the potential benefits of sponsorships and would like to become sponsors of large sports events, increasing competition between sponsors for a limited number of opportunities related to high-profile events. However, while potentially very effective, sponsorships are not immune to failures. Typical examples of such failures are situations in which sponsors do not get noticed or recognised by fans due to dilution of sponsorship's effectiveness caused by 'over sponsoring' – situations when sponsors are so numerous that only a few major ones tend to be noticed by consumers. One of the potential drawbacks in terms of the effectiveness of sports sponsorships lies in its connection with the results of the sports teams or athletes – namely, only when teams and athletes are successful will sponsorship realise its full potential. Additionally, Itkonen et al. (2009) state that potential scandals (e.g. doping) and the resulting negative image attached to sports can also threaten sports sponsorship. Edeling et al. (2017) analyse situations of frequent sponsor changes and explore how a change of sponsors affects consumer awareness. They show that, when the new sponsor has not established a place in consumers' minds, consumers remember the previous sponsor and their purchasing preferences are directed towards them. Such a finding is in line with Cornwell's observation that "*churn in (sponsorship) relationships is likely detrimental to partnership goals and objectives*" (2020, p.10). Numerous researchers have investigated the ethical desirability and social acceptability of sponsorship and advertising in sports which are linked to 'problematic' products such as alcohol (Jones, 2010; Kelly et al., 2014; Dos Santos et al., 2021), junk food (Donaldson & Nicholson, 2020), tobacco (Kroop et al., 1999; O'Neill & Greenwood, 2022) and gambling (Hing et al., 2013). Jones (2010) rightly asks the question when does alcohol sponsorship of sports become sports sponsorship of alcohol. Dos Santos et al. (2021) analysed the consumer's response using neurophysiological means for alcoholic and non-alcoholic brand sponsors and concluded that alcoholic brand sponsors attract more attention and recall but found no differences in intention to buy.

Through sponsorship of a team or an individual, sponsors become identified with the sponsored subject's image, characteristics, ideas and behaviour. Generally, athletes are most often sponsored as individuals – through their global popularity, they provide a far-reaching communication platform for their sponsors, their impact on the community and supporters is significant, while their goals – striving to be the best, align well with the goals of companies. Additionally, certain demographics of fans can be quite attractive, given the overlap with the sponsor's target consumer base. Such overlap is even more emphasised in professional niche sports, which rely heavily on the resources received via corporate sponsorships (Greenhalgh et al., 2021).

Due to the substantial increase in sports sponsorships, numerous authors (Koronios et al., 2019; Tan, 2018; Dos-Santos et al., 2016) emphasise the importance of the research of its effectiveness. This is important since higher involvement in a sport and higher exposure to a

sponsored event lead to higher recall and recognition of sponsors, emphasising the importance of various related activation points (e.g. sports magazines, internet pages, forums etc.) (Maricic et al., 2018). Companies need to understand their investment efficacy better, and in this sense, involvement is a key element in processing sponsorship information in consumers' minds (Dos-Santos et al., 2016). At the 2014 F1 Singapore Grand Prix, Tan (2018) tested the recall and recognition of brand names and logos displayed on cars, driver's clothing and around the venue. Results revealed that cars and driver's clothing are the most effective activation points in terms of their effect on brand awareness. Furthermore, some sports organisations (e.g. UEFA) practice having only a few large sponsorship contracts, preventing all competition from being advertised in any match-related context (Holt, 2007).

Nufer & Bühler (2010) point out that fans' awareness of the club's sponsor is an essential indicator of the effectiveness of sponsorship contracts. The audience is constantly exposed to various sponsorship messages and materials at different activation points, varying in effectiveness, in and around the stadium (e.g. team shirts, the stadium stands, seats, etc.). The recall rate is affected by the frequency of repetition and duration of the message, the length of a sports match and the number of pauses during which fans can process sponsorship messages. Sponsorship awareness has a direct positive effect on the purchase intentions towards products/services of the club sponsors (Ko et al., 2008; Maricic et al., 2018), as fans often perceive the sponsor as a member of their group due to the support sponsors provide to their club. Consequently, they see buying the sponsor's products as a means to support their club (Olson & Thjømmøe, 2011). Additionally, Ertz et al. (2019) state that team sponsorship has a stronger positive effect on consumers' attitudes than, e.g. ambush marketing and event sponsorships.

This paper is based on the research by Biscaia et al. (2013) in which football fans' awareness of club sponsors was investigated using unaided recall (recall in the remaining text) and recognition (aided recall) methods. Furthermore, through this research, authors aim to respond to Cornwell and Kwon's (2020) call for an additional inquiry into the effects of sponsorship portfolios and existing and past relationships held by the sponsorship property (i.e. sports organisations) on sponsorship effectiveness and efficiency. Consequently, in this paper, recall and recognition methods were employed in analysing the effectiveness of sponsorship by examining the fans' awareness of the sponsors of a professional football club. The empirical research is focused on the actual behaviour of the fans rather than on their attitudes towards the team or the sport, with a particular focus on differences between various types of fans. Previous research has shown that club members, particularly season ticket holders, are more knowledgeable about the sport, the team and the sponsors, are more emotionally involved and more critical when it comes to their team when compared to average fans (Madrigal, 2003). This paper aims to extend our understanding of those differences by examining them in the sponsorship recall and recognition context.

2. Empirical research

2.1. Research methodology

This study is based on data collected through a survey of a convenience sample of adult fans of a football club (HNK Hajduk Split), conducted during March and April 2022. The questionnaire used in the survey was developed and distributed online using the Google Forms platform. The

authors posted a link to the questionnaire on various social networks and in various open and closed fan groups on social media.

The structured questionnaire consisted of 15 closed-ended questions and an open-ended question. It was organised into three segments: questions related to the general demographic characteristics of the respondents, a segment in which sponsor recall was measured, and the final segment in which respondents had to recognise current sponsors of the club (aided recall). In the second segment of the questionnaire, respondents had to name a "top of the mind" sponsor and, additionally, up to a maximum of 12 sponsors using the unaided recall method, which is based on the ability of respondents to recall sponsors from their memory without any help (Aaker, 1996). In the third part, the respondents were given the names of six current sponsors combined with six former sponsors of competing teams. Their task was to recall/detect the current sponsors of the club. A multivariate analysis of variance (MANOVA) was used to investigate the differences between the mean values of correct and false recall/recognition of club sponsor brands between fans who are club members and those who are not, as well as among those who are season ticket holders, vs those who are not. The data were analysed using SPSS, and the results are presented in the following segments of this paper.

2.2. Results and Discussion

2.2.1. Analysis of collected data

Out of 436 respondents who participated in the survey, 432 were of legal age and were Hajduk fans. Among them were 310 men (71.8 %) and 122 women (28.2%). The majority of respondents were between 18 and 35 years old (309 of them; 71.5%). Respondents over 55 years old were least represented in the sample (22 of them; 5.1%). The remaining respondents (101 of them; 23.4%) were between the ages of 36 and 55.

Regarding club membership, 190 (44%) respondents are club members, while 242 (56%) are not Hajduk club members. Among the respondents, 94 (21.8%) have a season subscription for matches, while 338 (78.2%) do not. Further analysis shows that, out of the total sample, 237 respondents are neither club members nor season subscribers, 101 respondents are club members without being seasonal subscribers, five respondents have season subscription without being club members and 89 respondents are both club members and season subscribers. This breakdown shows that more than 50% of club members do not have a season ticket (subscription) for Hajduk matches.

In terms of watching matches on the television or the internet versus going to live matches, 155 respondents (35.9%) do not go to the stadium and prefer to watch games via TV or Internet streaming services. Out of those attending matches, 115 respondents (26.6%) go to the stadium more than eight times during a season, 90 (20.8 %) respondents go to live games up to 4 times per season, while 72 (16.7%) go to the stadium from 4 to 8 times per season. In terms of the type of company respondents watch matches in, the majority watch the match in the company of close friends (254; 58.8%), 113 (26.2%) watch matches with family members, 33 (7.6%) watch with a group of other fans while remaining 32 (7.4%) indicated that they are watching matches without company.

Respondents who are club members have, on average, been members for 6.4 years. 46 respondents have been club members for more than ten years and thus have experienced multiple changes in the main club sponsor. As previously discussed, almost a quarter of the respondents have an annual subscription to matches. On average, they have been subscribers

for 6.81 years. Finally, there is a visible increase in the number of club members and the number of season subscribers in the current year (increase of 9.7%), with the reason being fan excitement due to the acquisition of a star player.

2.2.2. Recall and recognition

In the questionnaire, fans were prompted to recall, in no particular order, up to twelve current sponsors and/or partners of the Hajduk football club. The first sponsor who came to mind (top-of-mind recall) was recorded separately, and the remaining sponsors, which respondents could recall without aids, were recorded as a set of answers.

Using unaided recall resulted in respondents providing a total of 31 companies/brand names of Hajduk sponsors. Out of those, 11 companies were current sponsors of Hajduk, while a total of 20 of them were either former important sponsors of the club (such as Konzum, INA, Croatia Insurance) or are currently sponsoring rival clubs (e.g. Coca-Cola, Adidas, Ožujsko beer). A total of 384 respondents (89%) correctly indicated the current sponsors of the club in the top of mind section. Top of mind recalls were the following companies: Tommy (314 respondents), Macron (24), OTP bank (15), Karlovačko beer (12), SuperSport betting (9), Slobodna Dalmacija newspaper (4), HEP (Croatian national electric power company) (4) and Apfel, Joker and Vulkan (1 respondent each). Out of the remaining respondents, 12 stated that they don't know anything about the club's sponsors, while 13 of them indicated the club's former sponsor (Konzum) as the top-of-mind sponsor. 23 respondents mentioned additional 19 companies – either former or sponsors of rival clubs, in this section. Finally, two respondents mentioned Croatian Telecom - the official sponsor of the league, whose logo is printed on the sleeve of the jerseys of all clubs in the 2021/2022 season, as a top-of-the-mind club sponsor.

In the season 2021/2022, 38 companies were sponsors of Hajduk football club, and additional 16 companies were categorised as the club's partners. Four sponsors were simultaneously partners of the club. Data shows that, in the non-top-of-mind recall segment of the research, respondents mentioned a total of 155 brands/companies. Out of that, fans remembered 39 current sponsors and/or partners of the Hajduk football club. Out of the total pool of current sponsors and partners, six sponsors and nine partners were not recalled by respondents at all (neither in unaided nor in aided measurements). A substantial number of the respondents made a mistake and indicated three former sponsors of the club: INA, Croatia Insurance and A1 Telecom as being current sponsors. It is interesting that only a few individuals mentioned major sponsors of the main rival club, GNK Dinamo, as sponsors of Hajduk: Coca-Cola (1 respondent), Adidas (1), and Ožujsko pivo (3).

As an indicator of the ability of respondents to remember the club's sponsors the number of false recall answers was subtracted from the total number of correct recalls for each individual (recall score in the following text). The results of this procedure are very indicative of a problematic situation for sponsors and clubs alike. Namely, 321 respondents (74.3%) had less than half of the possible points on the recall score. Although only 12 of the respondents stated that they did not know anything about the club's sponsors, the results showed that 52 respondents (12%) in fact did not accurately recall any of the club's official sponsors and/or partners. In (unaided) recall measurement, only 22 respondents (5.1%) provided 12 actual sponsors of the football club Hajduk.

Analysing fans' awareness of club sponsors, the results show that fans are significantly better at recognising or correctly identifying club sponsors when provided with a choice/list, than when they are prompted to recall them. When provided with a choice, almost 15% of fans correctly recognise sponsors/partners of the club, while 80.1% of respondents had more than half of the possible points on the recall score when recognising the club's sponsor.

Table 1: Sponsors used in the recognition analysis

Status*	Brand	Type of industry	Activation points (according to contract)	Other sports sponsorship programs
S	Macron	Sportswear	Technical sponsor – sports jersey (2013-present); advertisements at the stadium (2013-present)	Sponsor of the city basketball club
S	Tommy	Retail trade chain	Main sponsor – sports jersey (2013-present); advertisements at the stadium (2013-present)	Basketball club sponsor
S	SuperSport	Sports betting	Official sponsor – sports jersey (2020-present); advertisements in the stadium (2020-present)	Sponsor of a competing club
S	Karlovačko	Beer	Official sponsor – beer with the club's name (2016-present); sports jersey (2020 jersey); advertisements at the stadium (2016-present)	-
S	Adriatic osiguranje	insurance company	Official sponsor - advertisements at the stadium (2019-present)	Sponsor of the water polo club
S	OTP banka	Bank	Official sponsor - sports jersey (2018-present); advertisements in the stadium (2018-present)	Sponsor of the city basketball club
NS	Adidas	Sportswear	-	Sponsor of a competing club
NS	Konzum	Retail trade chain	-	Former club sponsor: sponsor of the football team
NS	PSK	Sports betting	-	Sponsor of a competing club
NS	Ožujsko	Beer	-	Sponsor of a competing club; former league sponsor
NS	Euroherc	insurance company	-	Sponsor of a competing club
NS	A1	Telecom	-	Sponsor of a competing club

*S – Sponsor; NS – Non-sponsor

Source: Authors

Table 1 shows the companies included in the recognition segment of the research instrument, brief explanation of their sponsorship roles, and the activation points in use. Table 2 shows that the dominant top-of-mind sponsor of Hajduk is a retail chain (72.6%) whose logo has been printed and prominently displayed on the front of the jersey for almost a decade and is constantly visible in the stadium, conspicuously positioned next to the scoreboard. Furthermore, these answers included other brands such as a sportswear brand (5.5%; logo displayed on the front of the jersey and shorts), national bank (3.5%; logo highlighted on the sleeve of the jersey), beer brand (2.7%; logo highlighted on the shorts) and sports betting (2.1%; logo highlighted

on the back of the jersey). An interesting finding is related to answers including Konzum, a retail chain which was the former sponsor of the club and whose logo was, at the time, prominently displayed on the front of the Hajduk jersey. Namely, 3% of the respondents incorrectly remembered Konzum as a sponsor in the recall segment of the research. A small percentage of respondents, 0.5 % and 0.2%, incorrectly provided current (Croatian Telecom) and former sponsor of the league (Ožujsko beer) in these answers. This finding is interesting due to the fact that league sponsors are and were printed on the sleeves of the jerseys of all teams, including Hajduk, and visible in the stadium during the whole season. Thus, this finding is indicative of respondents' ability to distinguish actual Hajduk sponsors from league sponsors (for TOM responses).

Table 2: Summary table of sponsor recall and recognition results

Title	Name	Recall - top of the mind (%)	Recall (other than TOM) (%)	Recognition (%)
S	Tommy	72,6	90,9	97
S	Macron	5,5	43,8	82,4
S	SuperSport	2,1	40,7	71,1
S	Karlovačko beer	2,7	40,3	66
S	Adriatic insurance	0	10	47,2
S	OTP bank	3,5	49,8	73,4
	Croatian Telecom*	0,5	4,9	
NS	Konzum	3	8,8	16
NS	Adidas	0	0,2	3
NS	PSK	0	1,2	14,4
NS	Ožujsko beer	0,2	0,4	9,3
NS	Euroherc	0	0,2	21,3
NS	A1	0	10	30,5

*Brand was not on the recognition list

Source: Authors

The remaining general recall results (other than the top-of-mind) follow a similar trend as the results of the top-of-mind recall. In their answers, the largest percentage of respondents (90.9%) remembered Tommy as the most important sponsor of the club. Following are four sponsors whose logotypes are shown on the jersey/shorts and in the stadium, with approximately similar recall values: OTP Bank (49.8%), Macron sportswear (43.8%), SuperSport betting (40.7%) and Karlovačko beer (40.3%). Adriatic Insurance, contrary to previously mentioned sponsors, had no logo displayed on the official jersey and is instead advertising on different types of billboards at the stadium itself. Results show that only 10% of respondents managed to recall Adriatic

Insurance as a sponsor of Hajduk. Additionally, 4.9% of the respondents mistakenly identified the current sponsor of the national league, Croatian Telecom, as the sponsor of the club.

Furthermore, significant recall values were present with two companies not currently sponsoring Hajduk. Namely, 10% of respondents falsely recalled A1 Telecom, at the time of research, the sponsor of the main rival club Dinamo, as the sponsor of Hajduk. Furthermore, 8.8% of respondents falsely recalled Konzum retail chain, at the time of research, the sponsor of the Croatian national team, as the sponsor of Hajduk. Potential explanation of such, fairly high false recall rates for these companies could be explained by their extensive presence in the football related media and news, as well as their previous sponsorship status (both companies were major sponsors of Hajduk).

Finally, table 2 reveals that the recognition rates of club sponsors are significantly higher than the recall rates. The largest proportion of fans (97%) recognise Tommy as an important sponsor of Hajduk. The remaining recognition percentages are as follows: 82.4 % Macron, 73.4% OTP Bank, 71.1% SuperSport, 66% Karlovačko beer and 47.2% Adriatic Insurance. The fans falsely recognised four companies which are not sponsoring Hajduk. Almost a third of respondents (30.5 %) falsely recalled A1 as the sponsor of the club, with 21.3% doing so for Euroherc insurance, 16% for Konzum and 14.4% for PSK betting. In terms of false recognition, it is somewhat surprising that the former sponsor of the national league and one of the most visible brands in the advertising space of the Republic of Croatia, Ožujsko beer, was indicated as a sponsor of Hajduk by less than one-tenth of respondents (9.3%). Only 3% of respondents falsely recognised Adidas (sponsor of the rival) as Hajduk's.

Table 3: Summary table comparing recall and recognition scores between supporters who have and those who do not have a membership card

Variables	MCH M (SD)	NMCH M (SD)	F	Sig.
Brands recalled correctly	4,68 (3,31)	3,07(3,09)	26,95	***
Brands recalled incorrectly	7,32 (3,31)	8,91 (3,09)	26,95	***
Brands recognized correctly	9,74 (2,23)	7,65 (2,93)	66,34	***
Brands recognized incorrectly	2,26 (2,23)	4,35 (2,93)	66,34	***

*** $p < 0.001$

Source: Authors

A one-way MANOVA was performed in order to investigate the differences between mean values of recall and recognition of club sponsor brands between fans who are club members and those who are not (table 3). As for the unaided recall, the results show a significant difference between club members and those who are not in terms of dependent variables, $F = 26.95$, $p = 0.001$; Wilks lambda = .941; partial $\eta^2 = .059$. Club members moderately more correctly recall the sponsors of the club, and conversely, fans who are not members moderately more falsely recall brands as sponsors of Hajduk. The results of the recognition method show that there is a significant difference between club members and those who are not in terms of dependent variables, $F = 66.34$, $p = 0.001$; Wilks lambda = .866; partial $\eta^2 = .134$. Club members recognise sponsors of the club significantly more correctly, and conversely, fans who are not members significantly more falsely recognise brands as sponsors of Hajduk.

Table 4: Summary table comparing recall and recognition scores between supporters who hold and those who do not hold an annual season ticket

Variables	STH M (SD)	NSTH M (SD)	F	Sig.
Brands recalled correctly	4,98 (3)	3,45 (3,3)	16,6	***
Brands recalled incorrectly	7,02 (3)	8,55 (3,3)	16,6	***
Brands recognised correctly	9,96 (2,93)	8,19 (1,97)	30,57	***
Brands recognised incorrectly	2,04 (2,93)	3,81 (1,97)	30,57	***

*** $p < 0.001$

Source: Authors

A one-way MANOVA was performed to compare the differences in recall and recognition of sponsor brands and false recall and recognition of sponsor brands between season ticket holders and those who are not season ticket holders (table 4). Results for the unaided recall, tested using the Wilks' criterion, the dependent variables were significantly different between respondent groups (Wilks' $\Lambda = .963$, $F = 16.59$, $p < .001$, partial $\eta^2 = .037$). The results show that season ticket holders, contrary to those who are not, recall the club's sponsors more correctly, while fans who do not own a season ticket moderately more falsely recall brands as Hajduk's sponsors. With the recognition method, using Wilks' criterion, the dependent variables were significantly different between respondent groups (Wilks' $\Lambda = .934$, $F = 30.57$, $p < .001$, partial $\eta^2 = .066$). The results show that season ticket holders recognise the sponsors of the club moderately better than fans who are not, and conversely - that fans who are not subscribers moderately more falsely recognise brands as sponsors of Hajduk.

2.3. Research limitations and future research directions

The main limitations of this research are discussed in this segment. In this study, the research was limited to only one football club with the largest number of spectators and the largest number of sponsors in the Croatian football league. Even though the number of respondents was substantial, convenience sampling and the survey mode employed (online survey) had a significant impact on the sample structure in terms of age and other demographic characteristics. Namely, the sample was heavily skewed towards younger respondents and active users of the Internet and particularly social networks, likely diminishing the overall representativeness of the sample. Thus, future research could be improved by including a more representative sample of football fans. Additionally, fans from other clubs should also be included. The research was performed during a relatively short period of time in the middle of the season. Considering the fact that fan awareness of the club's sponsors increases as the season progresses, future studies should aim at collecting data at approximately the same time in terms of season dynamics in order to improve the comparability of the findings.

One of the important questions related to the extent of recall and recognition of club sponsors is the influence of competitive results of the club on them. Since better results generally increase the interest of fans and followers of the club, future comparison of sponsorship awareness could be made between successful and unsuccessful club seasons or comparable clubs during the same season. Additionally, recall and recognition methods used are only some of the many methods that can be used to analyse the effectiveness of sponsorship in sports. Finally, from the sponsor's perspective, it would be interesting to study recall related to other sports. The majority

of the sponsors of the football club included in this study are also sponsoring at least one professional club in other sports. Researching sponsorship effectiveness across sports could provide some insights into the extent to which sponsoring small and niche sports can (or cannot) be more effective in terms of sponsorship outcomes for companies and clubs alike.

3. Conclusion

One of the most important aspects of sponsorship is determining the extent to which the fans mentally connect and/or recognise the connection between the sponsor and the club. The paper looks at fans' awareness of the club's sponsors and the differences between fans who are members and/or season subscribers and those who are not. The results of the research prove the recall and recognition methods as simple and authoritative methods for analysing the effectiveness of sponsorship. Analysing the results of the general recall, 12% of respondents are revealed as not recalling a single sponsor of the club, while 74.3% of them have less than half of the possible points on the recall score. Considering that none of the respondents remembered six of the current sponsors and nine partners of the club, the question of the justification of investing financial resources in sponsoring a football club in Croatia arises. This question is particularly relevant for a large number of smaller, less prominent sponsors. As a potential remedy for this issue, both sponsors and clubs need to work towards improving the visibility of their collaboration in order to make fans more aware of the sponsorships.

The results of the general recall (unaided, besides the top-of-mind) and the top-of-mind recall follow the same trend and are comparable to the results of Biscari et al. (2013). The general recall rates for the club's five major sponsors range from 40.3 % to 90.9%, and at the same time, these five sponsors dominate the top of mind awareness results. A potential contributing factor for such results lies in the fact that these companies have been long-term sponsors of the club with logos prominently displayed on the club's jersey. However, apart from these five companies, the remaining 33 sponsors do not fare so well. Only 10% of fans remember the sixth sponsor, and no one mentions that company as a top-of-mind sponsor. The fans, in an almost negligible percentage, remember the remaining sponsors, whose logos or names are not present on the jersey and who mostly have not been long-term sponsors of the club. It can be concluded that the combination of the duration of exposure to sponsor messages and the club jersey as the most important activation point shape fans' awareness of club sponsors. This finding seems to confirm previous research (Chadwick & Thwaites, 2004) identifying club jerseys as one of the most important vehicles in driving sponsorship awareness.

This research has found recognition rates of club sponsors to be significantly higher than recall rates, likely due to the less mental effort required when distinguishing brands. An additional contribution of the work lies in the analysis of the effect of the fans' actual behaviour regarding sponsorship awareness. The results show a significant difference between respondents who watch matches live (season ticket holders) and those who watch matches through other means (TV, streaming platforms, etc.). Fans who watch matches exclusively live are more accurate in recognising and recalling club sponsors, unlike respondents who watch matches through other media. This could be explained by the fact that fans attending matches are exposed to club's specific sponsorship messages to a greater extent, their attention is constant, and their experience of the matches more intense (emotionally and cognitively). Consequently, as Biscari et al. (2013) point out, live attendance likely evokes a stronger emotional response from fans towards sponsors. Additionally, the results show that club members recognise and remember club sponsors significantly better. This finding could be attributed to the fact that they are more

intensively involved in monitoring wide-ranging club-related information available through various media. This information is important for sponsors in order to identify all the possibilities (media or activation points) beyond the stadium itself and the club jersey, through which they can communicate their sponsorship to the fans.

The results of this study also show the negative sides of the sponsorship relationship. Namely, it is evident that fans mistakenly recognise three sponsors of a rival as sponsors of their own club. The reason for such false recall could lie in the general awareness of these companies, as they are present in the advertising space of the Republic of Croatia through sponsoring clubs in sports other than football as well as different events unrelated to sports. Furthermore, the results show that fans incorrectly recall and recognise two former sponsors of the club, currently sponsors of the national and a rival team. This finding is relatively unfavourable from the perspective of current sponsors since this "carry-over" effect occurs long after the sponsorship contract between the company and the club has ended. To conclude, this research has provided an interesting insight into the dynamics of consumer awareness of sponsors in the sports domain. All the findings clearly show both the high potential for beneficial outcomes for companies deciding to sponsor clubs, as well as problems which can occur due to over-sponsoring and the consequential dilution of fan attention and awareness. Hence, it can be concluded that companies and clubs should put additional and systematic effort into developing a sponsorship relationship and manage it as a joint long-term investment.

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THE IMPACT OF THE COVID-19 PANDEMIC ON PAYMENT BEHAVIOUR

ABSTRACT

Pandemic difficulties caused by Covid-19 significantly affected not only the healthcare system but also and the payment system in the Republic of Croatia. With the aim of reducing the spread of the Covid-19 virus, various measures were introduced to limit the movement of people and promote a new contactless society. The new contactless society required the application of new payment methods that are in line with the development of the "new normal" way of life. By promoting new methods of payment, an effort was made to reduce the physical contact resulting from handling cash, thereby reducing the spread of the Covid-19 virus and providing people with an additional sense of security. Financial institutions, through the continuous development of new technologies, adapted the available payment instruments to the new conditions in order to make online transactions easier, safer and more accessible to clients, which contributed to an easier transition to digital payments. The adoption of new contactless society has resulted in a change in the payment structure i.e. the shift in payment behaviour and payment preferences, evident in the increase of digital payments and moving away from the cash. Accordingly, the question arises: "Is Covid-19 a fundamental factor in changing the structure of payments in the payment system of the Republic of Croatia?", so this paper's purpose is to examine the effect of Covid-19 on payment behaviour and to explain the adoption of new payment methods during the Covid-19 pandemic. To explore the Covid-19 effect on payment behaviour, we collected payment behaviour data from the web site of Croatian National Bank and Covid – 19 data from the web site of Croatian Institute of Public Health for period from April 2020 to October 2022. To explore relationship between payment behaviour and Covid-19 we employed logistic regression. The results show positive and statistically significant impact of Covid-19 on the payment behaviour in the payment system of the Republic of Croatia.

Key words: covid-19, contactless society, payment behaviour.

1. Introduction

The Covid -19 pandemic has had a significant impact not only on the global healthcare system but also on world markets and the economy. Since March 11, 2020, when the World Health Organization declared Covid - 19 pandemic, we have faced dramatical changes in our lives. Pandemic conditions have affected our lives and created a new normal way of life marked by social distance. New normal way of life demanded the application of new technologies in line with current conditions. Social distancing and fewer physical interactions have led to faster adoption of contactless payments, because people avoided touching banknotes and coins physically to reduce the chance of Covid-19 infection. Over time, Covid - 19 turned from a global threat of the economy and financial markets into a global opportunity and push factor for the application of new digital technologies. Contactless payments during the Covid - 19 pandemic have become a necessity forced by governments and banks and in that way, people shifted away from cash to reduce the possibility of the Covid - 19 spread. So, this paper's purpose is to explain the adoption of new payments methods during the Covid - 19 pandemic and explore the correlation between the changes in payment behaviour and the aforementioned pandemic, considering also the impact of new technologies and the development of the financial sector.

2. Covid – 19 as driver of global changes

The Covid - 19 pandemic represented a significant threat to the global healthcare and economic system and probably the most challenging period in recent history. Since March 2020, Covid – 19 has fundamentally changed the world and set the new conditions for life and business. At the macro level, the Covid - 19 outbreak caused the worst global recession since 1930, when the economy got absolutely creamed (Shen, et al., 2020, 2213). The effect of the Covid -19 pandemic is visible in the report of the World Bank which indicates that a record 92.9% of the world's countries were in recession in 2020. This level is well above the previous high record of 83.8% in the Great Depression. It also exceeds the highs registered in 1914 at 70%, 1918-1921 at 70%, and 2008-09 at 61.2% (Hunt, 2020, 1). Also, through the literature we found a lot of previous research showing a negative impact of Covid - 19 on different economic aspects, as impact on the stock market (Liu, et al., 2020, 3), on the firm performance in the energy industry (Fu & Shen, 2020, 4) and on the corporate bankruptcies and job losses (Fu & Shen, 2020, 4). The negative impact of Covid - 19 is also visible through the reduction in economic activity across the following sectors in the Euro area (Næss-Schmidt , et al., 2020, 1) as seen in Table 1.:

Table 1: Current reduction in activity across sectors in the Euro area

Sectors	Reduction
Arts, entertainment and recreation	84%
Hotels and restaurants	75%
Wholesale and retail trade	75%
Construction	50%
Operational services and knowledge-based activities	39%
Manufacturing	26%
Transporting	22%

Sectors	Reduction
Information and communication	16%
Utilities	12%
Total economy	27%

Source: Authors' work based on estimates from the OECD, Dansk Industri, Dansk Erhverv, Danske Bank and Copenhagen Economics

All of the above points to catastrophic economic consequences which have forced governments to find solutions and answers to the fundamental question "How to stop the spread of Covid - 19 and stop the economic decline and encourage the economy to move forward? ". As one of the measures to mitigate the effect of Covid-19 and start the economy progress is the introduction of new technologies. The growing use of technology in working, playing and staying connected have created new digital behaviours. Covid - 19 has shaped a demand for touchless technology that allows users to avoid physical touching of surfaces and other people while severely impacting the world economy (Puriwat, Tripopsakul, 2021, 85). Starting from this point of view, authors point out Covid - 19 as driver of changes in the financial sectors through the new digital payment behaviours which realized as a mechanism for reducing spread of Covid – 19. Covid-19 as a driver of change was noticed by Visković, Kordić and Miletić (2022), who found that banks in Croatia increased their total factor productivity by 2.2% on average, mainly due to an increase in technological change (1.93%), implying innovation and new banking services. Moreover, the Covid - 19 pandemic crisis has further accelerated the race for efficiency. Indeed, the results show that the improvement in efficiency was more remarkable than the average of the period studied, especially in terms of technical efficiency (1% in 2020 compared to the mean of the period of 0.28%), but also due to technological efficiency (2.02% in 2020 compared to the mean of the period of 1.93%). Finally, the Covid - 19 pandemic crisis affected efficiency in different ways with respect to the size of banks. Large banks improved their total factor productivity by 7.19%, small banks by 2.64%, and medium-sized banks reduced it by 1.38%. In addition, large banks achieved efficiency improvements due to technological change, while small banks focused on both technical (1.70%) and technological (0.98%) efficiency improvements.

2. Payment behaviours theoretical background

The first studies regarding the choice between different payment instruments were published at the beginning of the 1990s as a result of the introduction of new electronic payment instruments. Previous research related to payment behaviours cites a very wide range of significant factors. Payment behaviours are under a significant influence of different factors, e.g. cash usage increase with age and decrease with education and income (Jonker, 2007, 287), electronic payment is more likely than cash payment in cases of larger amounts (Wang, Wolman, 2016, 94), payment choice depends on the ability to monitor liquidity (von Klackreuth et.al., 2014, 1753). Also, through the literature it can be observed that payment methods are correlated with maintaining control over one's budget (Hernandez, Jonker and Kosse, 2017, 91) and the perceived speed of the payment, its user-friendliness and security (Jonker, 2007, 287). Importance of social norms, attitudes and feelings are also significant factors of payment behaviours and, alongside that, (Solnick, 2007, 316) it was revealed that participants using cash were less generous towards other participants than those using alternative ways to track their monetary rewards. The influence of the introduction of new technology on payment methods is also mentioned through the literature. According to Powell

(2017) the new technology and innovative businesses increasingly affect daily financial lives. Mobile devices, high-speed data communication, and online commerce are creating expectations that convenient, secure, real-time payment and banking capabilities should be available whenever and wherever they are needed. At the same time, disruptive new technologies suggest that traditional financial service providers must innovate and adapt or expect to be left behind. In addition, Zhang, (2020, 49) found that mobile payment technology is positively associated with credit card use while being negatively associated with cash and check use. In addition to higher credit card usage, the adoption of mobile payment technology is associated with credit card revolving behaviour. From this point, it can be concluded that new technologies and technological innovations are reshaping payment systems, capitalizing on technological advances to better align with user preferences and sector-specific business requirements, e.g. touch or scan payment solutions such as Apple Pay, Google Pay and QR codes, which displaces cash from use. Considering that the Covid-19 pandemic primarily threatened the healthcare system, one of the starting points of this paper is the Health Belief Model which is often used to explain and predict individual changes in health behaviors. The Health Belief Model provides insights into how to educate individuals on performing actions to respond to health risks (Rosenstock, 1974, 355). Health Belief Model explains that individuals refer to two main components when determining whether to implement health-related behaviours, namely perceptions about risks and outcome expectancies regarding the behaviour (Maiman, Marshall, 1974, 336). Risk perception pertains to the perceived seriousness of the negative consequences of existing risks along with the perceived susceptibility to the risk; the former is a belief regarding the seriousness of the condition-induced consequences, and the latter is a personal belief about the likelihood of contracting the condition. Perceived health risks consist of 2 dimensions: perceived susceptibility to disease and perceived seriousness of disease. Perceived susceptibility is defined as “a persons’ view of the likelihood of experiencing a potentially harmful condition,” and perceived seriousness refers to “how threatening the condition is to the person” (Sreelakshmi & Prathap, 2020, 351). The application of the Health Belief Model in scientific research was updated with the emergence of Covid-19, because Covid - 19 has become the main health risk factor which determines the individual’s behaviours. Among the first few authors who use Health Belief Model to explore factors influencing the intention to use digital technologies in the Covid - 19 pandemic was Walrave, Waeterloos and Ponnet (2020) who investigated factors influencing a contact tracing app use intention for containing Covid - 19 in Belgium. They found that the intention to use the contact tracing application was significantly predicted by the perceived usefulness of the application, self-efficacy and perceived barriers. The Covid -19 pandemic was a unique opportunity to apply the Health Belief Model in research related to payment behaviours. Most of the conducted research points to the fact that the Covid -19 pandemic has accelerated the application of contactless payments. Contactless payment in Covid - 19 pandemic times represent a tool for avoiding infection with Covid – 19 virus. This is supported by the statement of the spokesperson of the World Health Organization who noted: "When possible, it would be advisable to use contactless payments in order to reduce the risk of Covid-19 transmission" (Dong, 2020). According to the report of the Danish central bank (Danmarks Nationalbank, 2020) it can be concluded that contactless and online payments quickly gained ground while cash payments fell during the Covid - 19 lockdown. More specifically, 30% of the Danish respondents increased payment card use when compared to it before the lockdown, and 41% reported less cash usage. Also, studies conducted globally show adoption and significant increase of usage of contactless payment, e.g. Kornitzer, (2020) shows that 55% of United States consumers worried about paying with cash by using banknotes and that 82% of respondents believe that contactless payment is a safer way to pay. Also, in Thailand people are also aware of the

benefit of contactless payment technologies and 79% of Thai people are using contactless payments more often than they did two years ago, and 75% of Thai respondents who are not using contactless payments today are interested in doing so in the future (Bangkok Post, 2020).

3. Data and Methodology

The aim of this study was to examine the effect of Covid - 19 on payment behaviour and to explain the adoption of new payment methods during the Covid-19 pandemic. To explore the Covid-19 effect on payment behaviour, we collected payment behaviour data from the web site of Croatian National Bank (www.hnb.hr) and from web site of Croatian Institute of Public Health we collected Covid-19 numbers for period from April 2020 to October 2022. We employed logistic regression to explore relationship between dependent variable (Payment behaviour) and two groups of independent variables, one connected with Covid – 19 impact (the number of Covid - 19 infections, the number of people on respirators, the number of deaths) and the other connected with development and modernization of financial sectors (the number of ATMs, the number of POS terminals, the number of cards). As it can be seen from Table 2, the sample consists the 31 observations for each of 10 different variables.

Table 2: Descriptive statistic

Variable	Obs.	Mean	Std. Dev.	Min	Max
Number of card transaction	31	50.434.926	10.963.106	27.797.543	76.570.323
Value of card transaction	31	18.257.208.034	4.546.478.737	10.579.158.098	29.569.145.214
Number of cash transaction	31	4.189.017	511.147	3.509.842	6.359.340
Value of cash transaction	31	16.098.728.518	2.807.830.418	9.274.116.919	22.025.606.012
Covid - 19 infections	31	40.194,26	49.159,73	162,00	224.246,00
People on respirators	31	282,32	288,74	2,00	995,00
Deaths	31	500,61	575,47	3,00	2.134,00
ATMs	31	5.608,65	734,33	4.647,00	6.744,00
POS terminals	31	115.729,68	5.867,36	106.204,00	126.072,00
Cards	31	8.876.805,32	244.839,76	8.696.880,00	9.705.166,00

Source: Authors

Using several independent variables can lead to a distorted and unrealistic assessment of contributions of individual independent variables when trying to explain the dependent variable. This problem resulting in high collinearity of two or more than two independent variables. Before the linear regression analysis, we explored the multicollinearity between the independent variables. An absolute value of the Pearson coefficient higher than 0.7 indicates a strong correlation between independent variables. As seen in Table 2, there is multicollinearity problem between independent variables related to Covid – 19 (Covid - 19

infections, People on respirators and Deaths) as expected. Multicollinearity is expected, which is logical because the movement of one variable depends on another. For example, the higher number of Covid - 19 infected people, should imply the higher number of people on respirators and higher number of deaths. Due to that, this problem of multicollinearity is ignored and the research continues with all variables.

Table 3: Correlation Matrix

	Covid - 19 infections	People on respirators	Deaths	ATMs	POS terminals	Cards
Covid - 19 infections	1.0000					
People on respirators	0.7634	1.0000				
Deaths	0.7032	0.9578	1.0000			
ATMs	-0.5621	-0.6316	-0.6524	1.0000		
POS terminals	0.0547	-0.2756	-0.3215	0.3854	1.000	
Cards	-0.3241	-0.3046	-0.3393	0.4527	-0.1205	1.0000

Source: Authors

After examining the problem of multicollinearity between independent variables we tested if there is presence of heteroscedasticity. If the error terms do not have constant variance, they are heteroscedastic. If the heteroscedasticity is present, the standard errors are biased. This can lead to bias in test statistics and confidence intervals. To test the presence of heteroskedasticity in the research, the Breusch-Pagan test for heteroskedasticity was applied. In case the results of the Breusch-Pagan test for heteroscedasticity indicated that heteroscedasticity was present, robust standard errors were applied, while in cases where heteroscedasticity was not established, standard errors were applied. The following table summarizes the final result of the empirical analysis regarding the payment behaviour which we explored by movements in card transactions and cash transactions.

Table 4: Linear regression analysis

Variables	Number of card transactions	Value of card transactions	Number of cash transaction	Value of cash transaction
Covid - 19 infections	0.0519902* (0.0290371)	0.0475182* (0.0232811)	-0.0025576* (0.312093)	0.0734078** * (0.0253538)
People on respirators	-0.0296839 (0.097081)	0.0055583 (0.0814745)	-0.0697062 (0.0732927)	-0.594699 (0.0914459)
Deaths	0.0323467 (0.0943845)	0.0011653 (0.0803802)	0.0848164 (0.0963018)	0.0317197 (0.0912237)
ATMs	0.9738477*** (0.2125265)	1.148686*** (0.2015621)	0.689646*** (0.2791354)	0.8896722** * (0.2043861)
POS terminals	2.136769*** (0.3847875)	2.168353*** (0.4575909)	- 0.8683579** * (0.3256635)	1.05798*** (0.3472503)

Variables	Number of card transactions	Value of card transactions	Number of cash transaction	Value of cash transaction
Cards	1.18347 (0.9950129)	1.577051 (0.942151)	1.022868 (0.7297683)	1.882058*** (0.8448936)
cons	-35.05911 (18.08994)	-37.30942 (16.94763)	2.967419 (14.956)	-27.21823 (16.07039)
Observation	31	31	31	31
F (6, 24)	24.17	27.84	9.30	46.39
Prob > F	0.0000	0.0000	0.0000	0.0000
R-squared	0.8641	0.8744	0.8503	0.8449
Breusch-Pagan test	p value = 0.0499	p value = 0.9840	p value = 0.0127	p value = 0.0186

*, **, *** Statistically significant at the: 10%, 5%, 1% level, respectively. Standard errors and are robust standard errors between parentheses.

Source: Authors

Statistical significance of the models can be determined based on the p-values of the empirical F-ratios in the table. If the p-value of the empirical F-ratio is statistically significant, this leads to a conclusion that the independent variable significantly affects the dependent variable. More specifically, it can be said that the models are statistically significant. F-ratio of the tested models are less than 1% in all four cases, and it can be argued that the models as a whole are statistically significant.

Results of linear regression analysis for number of card transactions shows the proportion of variance of the dependent variable interpreted by the model. The coefficient (R^2) is 0.8641, i.e. 86.41 % of the variance of the share of payment behaviour explained with the Covid – 19 infections and contained variables. The coefficient (R^2) serves as a measure of representativeness of the model and the value indicates a highly representative model. The data show that Covid – 19 infections statistically significantly affect the number of card transactions at the 10 % level. Covid – 19 infections have a positive impact on the number of card transactions [coef. .0519902]. So, we conclude that new Covid – 19 infections have led to an increase in likelihood to pay with cards and in that way avoid the contact with the cash and shift the payment behaviour. The table shows that ATMs and POS terminals are also significantly affecting the number of card transactions at the 1% level. The ATMs have a positive impact on the number of card transactions [coef. 0.9738477], and the POS terminals also have a positive impact on the number of card transactions [coef. 2.136769], which is clear because the development of the banking sector through greater availability of ATMs and POS terminals imply increasing likelihood to use the cards. The result of linear regression analysis for the value of card transactions shows the proportion of variance of the dependent variable interpreted by the model. The coefficient (R^2) is 0.8744, i.e. 87.44 % of the variance of the share of payment behaviour explained with Covid – 19 infections and contained variables. The coefficient (R^2) serves as a measure of representativeness of the model and the value indicates a highly representative model. The data show that the Covid – 19 infections statistically significantly affects the value of cards transactions at the 10 % level. Covid – 19 infections have a positive impact on the value of cards transactions [coef. 0.0475182], therefore, it can be assumed that due to the covid pandemic, people bought goods in larger quantities in order to create supplies for their household needs. The table shows that ATMs and POS terminals are also significantly affecting the value of cards transactions at the 1% level. The ATMs have a positive impact on the number of cards transactions [coef. 1.148686],

and the POS terminals also have a positive impact on the number of cards transactions [coef. 2.168353], which is expected considering the greater availability of POS terminals. Result of linear regression analysis for the number of cash transactions shows the proportion of variance of the dependent variable interpreted by the model. The coefficient (R^2) is 0.8503, i.e. 85.03 % of the variance of the share of payment behaviour explained with the Covid – 19 infections and contained variables. The coefficient (R^2) serves as a measure of representativeness of the model and the value indicates a highly representative model. The data show that Covid – 19 infections statistically significantly affect the number of cash transactions at the 10 % level. Covid – 19 infections have a negative impact on the number of cash transactions [coef. -0.0025576], therefore, it can be assumed that due to the Covid-19 pandemic, people avoid the cash and they don't want to have physical contact with banknotes and coins to avoid infection. From the table it can be seen that the ATMs and POS terminals are also significantly affecting the number of cash transactions at the 1% level. The ATMs have a positive impact on the number of cash transactions [coef. 0.689646]. The authors see the explanation of this connection in the fact that ATMs are becoming more accessible to citizens (a greater number of ATMs means greater access to cash), so citizens have greater opportunities to withdraw cash, which ultimately affects a greater number of cash transactions. On the other hand, the POS terminals have a negative impact on the number of cash transactions [coef. -0.8683579], which implies that people use cards instead of cash for payments. A greater number of POS terminals leads to less use of cash, and citizens start paying smaller amounts of bills with cards. The result of linear regression analysis for the value of cash transactions shows the proportion of variance of the dependent variable interpreted by the model. The coefficient (R^2) is 0.8449, i.e. 84.49 % of the variance of the share of payment behaviour explained with Covid – 19 infections and contained variables. The coefficient (R^2) serves as a measure of representativeness of the model and the value indicates a highly representative model. The data show that the Covid – 19 infections statistically significantly affect the value of cash transactions at the 1 % level. Covid – 19 infections have a positive impact on the value of cash transactions [coef. 0.0734078], therefore, it can be assumed that due to the Covid-19 pandemic, people, when they have to use cash, try to increase the volume of their purchases and create adequate stocks. From the table it can be seen that ATMs, POS terminals and number of cards are also significantly affecting the value of cash transactions at the 1% level. A positive relationship between ATMs and value of cash transaction is expected because a larger number of ATMs means greater access to cash and thus a higher value of cash transaction. However, the positive relationship between the number of POS terminals and the card number with the value of cash transaction is unexpected for the authors of this paper and opens up the possibility of further research into the same relationship. The authors believe that this connection can be explained by the fact that greater possibilities of different payment methods (including the increased number of POS terminals and cards) leads to a psychological effect on customers and they spend more (and thus the value of cash transaction increases). Summarizing the aforementioned results, it can be pointed out that Covid-19 infections have a significant impact on the payment behaviour.

4. Conclusion

The appearance of the coronavirus at the end of 2019 in China and its subsequent spread through the world forced the World Health Organization to declare the Covid-19 pandemic, which had numerous adverse consequences worldwide on different aspects of human life such as health, social activities, financial activities etc. In Croatia, the first positive case of Covid -

19 was recorded in February 2020, which also had a significant impact on the reduction of economic and social activities. The Covid-19 pandemic has created an era of a new normal way of life known as contactless society. The Covid -19 pandemic has created an era of a new normal way of life known as contactless society. Contactless society demands a contactless payment which was recognized as a tool to stop the Covid - 19 pandemic spread. In accordance with this premise, we employed the Health Belief Model to explain the effect of Covid - 19 on the contactless payment. Based on empirical research, we found that Covid-19 increased the use of contactless payments and the shift away from the cash. The abovementioned and empirical results give us the positive answer to the fundamental question in the paper: "Is Covid-19 a fundamental factor in changing the structure of payments in the payment system of the Republic of Croatia?". The positive answer is visible through the following findings and conclusions:

- Covid – 19 infections have a positive impact on the number of card transactions, which leads to a conclusion that because of fear of Covid -19 people avoid contact with cash and shift the payment behaviour towards cards and contactless payment,
- Covid – 19 infections have a positive impact on the value of card transactions, which leads to a conclusion that due to the Covid - 19 pandemic, people bought goods in larger quantities in order to create supplies for their household needs and, in that way, keep themselves safe,
- Covid – 19 infections have a negative impact on the number of cash transactions, which leads to a conclusion that due to the Covid - 19 pandemic, people avoid cash and they don't want to have physical contact with banknotes and coins to avoid infection
- Covid – 19 infections have a positive impact on the value of cash transactions which leads to a conclusion that due to the Covid - 19 pandemic, when they have to use cash, people try to increase the volume of their purchases and create adequate stocks.

The above results show and confirm that Covid-19 has a statistically significant impact on the payment behaviour in the payment system of the Republic of Croatia.

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A scientific paper

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THE INFLUENCE OF MANAGERIAL ACCOUNTING ON THE IMPROVEMENT OF INTERNAL PROCESSES IN NONPROFIT ORGANIZATIONS

ABSTRACT

Nonprofit organizations have specific practices when performing activities that make them unique. Therefore, nonprofit organizations require detailed information from an internal perspective that will enable them to develop actions to accomplish efficiency and, thus, better performance. Generally, managerial accounting provides additional information for the greatest possible usefulness in planning, controlling and evaluating a business. Therefore, it is essential in the nonprofit sector to realize how managerial accounting techniques improve efficiency. Many studies in the for-profit and public sectors have examined the association between managerial accounting use and organizational performance success. In contrast, studies on the usefulness of managerial accounting in the nonprofit sector are still scarce.

This study emphasizes only one specific dimension of the nonprofit's organizational performance, i.e., improving internal processes. This paper examines the relationship between the extent of the implementation of management accounting practices in nonprofit organizations and the effect of such practices on improving internal processes in the nonprofit sector. Data were collected through a mail survey of 1,057 questionnaires to nonprofit organizations in Croatia. The overall response rate was 39.36 %, and data were analyzed using structural equation modelling. The study found a positive relationship between the improvements of internal processes in nonprofit organizations with the adoption of managerial accounting practices. The findings suggest that with the adoption of managerial accounting techniques, nonprofit organizations are more likely to increase success in improving internal processes. The study adds new knowledge to accounting research in the nonprofit sector by highlighting the importance of adopting managerial accounting practices in nonprofit organizations.

Key words: *nonprofit organizations, managerial accounting, internal processes.*

1. Introduction

With the growth and expansion of the nonprofit sector, appropriate responsibility for performance and results are demanded from nonprofit organizations (Drucker, 1989), a professional approach to management (Alfirević & Gabelica, 2007) and the need for information on achieved performance (Dunn & Mathews, 2001). In response to the requirements mentioned above, nonprofit organizations have an increasing demand for better insight into their business processes, i.e. for accounting and accounting information. The roles

of accounting information are as valuable for the nonprofit sector as for the for-profit sector (Hofman & McSwain, 2013).

Managerial accounting is valuable for orienting an organization's behaviour toward fulfilling goals; however, there are limited studies on managerial accounting in the nonprofit sector. The studies dealing with managerial accounting techniques have been carried out mainly in for-profit businesses, where managerial accounting was initially developed. Nonprofit organizations have received insufficient attention in discussing whether and how management accounting practice matters for them. Previous research in management accounting thus calls for a better understanding of managerial accounting in nonprofit organizations (Eldenburg & Krishnan, 2007; Hopper & Bui, 2016).

Namely, several characteristics are unique to the nonprofit sector, which require special access to the discussion of whether and how management accounting practice matters to the performance of nonprofit organizations. Nonprofit organizations aim to encounter public needs and provide benefits to their members, while for-profit organizations strive to provide their shareholders with a return on investment. Furthermore, contrasting to for-profit organizations, nonprofit organizations do not have shareholders or investors and are often managed by experts who also deliver the services offered by the organization (Duncan et al., 1999). In addition, one of these unique characteristics of nonprofit organizations is the lack of a single measure of overall performance. That creates a problem for nonprofit entities' managers in assessing the organization's effectiveness. In nonprofit organizations, performance measurement is a complex issue many authors have addressed. Due to the lack of information on profitability, it does not only imply the measurement of financial performance (Forbes, 1998) but implies a multidimensional approach (Herman & Renz, 1999; Ebrahim, 2003; Sowa, Selden & Sandfort, 2004; Lecy, Schmitz & Swedlund, 2012; Chen, 2016; Johansen & Sowa, 2019; Costa & Andreus, 2021). This study emphasizes only one specific aspect of the nonprofit's organizational performance, i.e., improving internal processes.

This study aims to examine whether adopting managerial accounting helps improve internal processes in nonprofit organizations. The structural equation modelling (SEM) technique was performed on the data collected from a sample of 416 nonprofit organizations in Croatia. It provides empirical evidence that managerial accounting in nonprofit organizations supports improving internal processes. SEM is suitable for management accounting research in the nonprofit sector because it implies a method that helps to determine unobservable conceptual variables like managerial accounting techniques and non-financial performance (Perica, 2021). The study contributes to the existing management accounting literature by producing empirical evidence on applying managerial accounting in nonprofits. This study also extends previous research by developing a model specifying that managerial accounting techniques will make favourable improvements in internal processes in nonprofit organizations because there has been relatively slight empirical evidence of this relationship in the literature to date. This research also contributes to performance measurement in the nonprofit sector. Despite the extensive academic literature, there are no unique solutions, and there is still no consensus regarding the performance measurement procedures in nonprofit organizations. This study proposes one non-financial dimension of measuring the performance of nonprofit organizations, i.e. the improvement of internal processes.

In management accounting studies, all abilities of SEM have only partly been applied (Nitzl, 2016), especially in the context of nonprofit organizations. This study advances the research methodology in managerial accounting studies in the nonprofit sector by applying SEM. SEM

evaluates unobserved and observed variables and simultaneously considers construct-measure and construct-to-construct relationships.

The study is organized as follows. In the following section, a literature review and the development of a hypothesis are presented. The research methodology and data are presented in the third section. The fourth section offerings the results and discussion, followed by concluding remarks, limitations, and implications.

2. Literature review and hypothesis development

Previous research into the consequences of using managerial accounting techniques to achieve organizational performance focuses predominately on the for-profit and public sectors. There is considerable evidence that data provided by management accounting has the potential to deepen the understanding of managers in the context of organizational decision-making, improve judgment and decision-making, and increase productivity and target performance (Maiga & Jacobs, 2003; Cardinaels, Roodhooft & Warlop, 2004; Macinati & Anessi-Pessina, 2014; Spekle & Verbeeten, 2014; Uyar & Kuzey, 2016; Ghasemi et al., 2019; Firk, Richter & Wolff, 2021; Van der Hauwaert et al., 2022; Nugroho & Rustiana, 2023). Managerial accounting enables understanding and clarity of organizational goals, their subsequent monitoring and control, appropriate coordination between different subunits, modifies the organization's attitude towards the environment, and as such, contributes to the achievement of target performance (Otley, 1980; Abernethy & Brownell, 1999; Davila & Foster, 2005; Verbeeten, 2008; Tuan, 2020, Osma, Gomez-Conde & Lopez-Valeiras, 2022).

Despite the extensive academic literature on managerial accounting in the for-profit and public sectors, more research on managerial accounting is needed in the nonprofit sector. Holder (1987) emphasizes that nonprofit organizations need accounting information to control whether and to what level they are implementing the programs for which they are active in the community. It clarifies that accounting information enables nonprofit organizations to assess the distribution of funds between administrative and program activities and assess the ability to continue constantly providing appropriate services. Kaplan (2001) suggests that an accounting system that provides information and analysis to monitor strategy enables nonprofit organizations to link mission and strategy statements and day-to-day operative activities. In their research on nonprofit organizations, Ip, Li and Yau (2003) emphasize that using activity-based costing in nonprofit organizations enables staff participation in improving operations and achieving better results. Pizzini (2006) examines the relationship between internal cost accounting system use and the utility of cost data and financial performance using a sample of 277 hospitals and indicates that the detailed cost information is favourably related to measures of financial performance. Chenhall, Hall and Smith (2010) find that managerial accounting can assist nonprofit organizations' efforts to develop well-organized and effective actions within the context of the manage economic resources. Henderson and Lambert (2018) indicate that managerial accounting improves the decision-making process in nonprofit organizations. Perica (2021) proves the evidence of direct relationships between managerial accounting techniques and effective community engagement of nonprofit organizations (non-financial performance).

Achieving the goals of nonprofit organizations by shaping individual behaviours in nonprofit organizations encourages collective performance, but conceptualizing and evaluating performance in the nonprofit sector remains problematic. When conceptualizing the performance of nonprofit organizations, no universal standard can be applied (Fowler, 1996).

This study emphasizes only one specific aspect of the nonprofit's organizational performance, i.e., improving internal processes. Improvement of internal processes in nonprofit organizations implies (1) continuous simplification and alignment of the organization's processes (de Waal & Olale, 2019) and (2) improvement of crucial internal processes in the system based on the following quality areas: fundraising, distribution of funds, and information processing/communication (Kalpan, 2001).

In light of the previous empirical findings in the nonprofit sector, which indicate that the managerial accounting system enhances the organization's processes in general and following the described positive association between the use of managerial accounting and organizational performance in the for-profit and public sectors, the following hypothesis is developed:

H1. Using managerial accounting in nonprofits is positively related to improving internal organization processes.

3. Methodology and Data

3.1. Sample selection

Data was collected using a questionnaire survey. A sample of 1,057 nonprofit organizations in Croatia was chosen to complete the questionnaire. Several criteria were adopted in selecting the sample: nonprofit organizations with more than ten employees or volunteers and nonprofit organizations that apply double-entry accounting. The survey questionnaire was sent by e-mail to the executives of nonprofit organizations because they were expected to provide appropriate information about internal processes and the use of managerial accounting in organizations. 416 questionnaires were filled out, giving a response rate of 39.36 %. There was no missing data. The questionnaire survey included questions about the applications of managerial accounting techniques in organizations and the improvement of internal processes.

Nonprofit organizations from the sample are primarily associations (86.3%). Besides that, the sample includes 7.7% institutions, 1.9% religious organizations, 1% chambers, and 3.1% surveyed nonprofit organizations representing other nonprofit organizations, including foundations, cooperatives, etc. The nonprofit managers from the sample are mostly (53,8%) below 45 years old, 28.6% are between 46 and 55 years old and 17.6 over 55 years of age. They mostly have experience managing nonprofit organizations because most (57%) have held managerial functions in a nonprofit organization for over six years.

3.2. Variable description

An independent variable, the practice of managerial accounting techniques, was measured using a to some extent modified version by King, Clarkson, and Wallace (2006), following the question, "How systematically does the organization use the following management accounting techniques?". Responses for all the items (Table 1) were made on a five-point Likert scale (1 "not at all", 5 "every week"). The dependent variable, internal organization processes, was measured using an adjusted form of de Waal and Olale (2019) and Kalpan (2001). For the dependent variable, internal organization processes, the respondents were asked to indicate their agreement related to the improvement in internal organization processes on a scale ranging from "1" (strongly disagree) to "5" (strongly agree).

Table 1: A list of items used for variables

Variable	Item description	Index
Managerial accounting	<i>The nonprofit organization monitors costs by the source of funding.</i>	MA1
	<i>The nonprofit organization controls the budgeting of costs.</i>	MA2
	<i>The nonprofit organization monitors direct and indirect project costs.</i>	MA3
	<i>The nonprofit organization monitors cost by functional classification.</i>	MA4
	<i>The nonprofit organization monitors overhead costs by assigning them to activities.</i>	MA5
	<i>The nonprofit organization monitors internal performance indicators.</i>	MA6
Internal process	<i>The nonprofit organization continuously simplifies and harmonizes work processes.</i>	IP1
	<i>The nonprofit organization is improving internal fundraising processes and funds distribution to its beneficiaries.</i>	IP2
	<i>The nonprofit organization improves internal information processing/communication processes.</i>	IP3

Source: Author

4. Empirical results and discussion

Covariance-based structural equation modelling (SEM) in SPSS Amos 23 was performed to test the hypothesis. This multivariate statistical method represents a method that allows management accounting research in the nonprofit sector to analyze unobservable variables corresponding to managerial accounting techniques and non-financial performance (Perica, 2021). SEM enables synchronized examination of the whole system of variables to define how it relates to the data (Tabachnick & Fidell, 2013). SEM analysis followed the two-step approach: testing of a measurement model and a structural model. Firstly, exploratory factor analysis (EFA) was implemented to identify the factor structure and determine the basic constructions for the variables covered by the subject research. Then, the measurement model tested the unidimensionality, reliability, and validity of the structure. A confirmatory factor analysis was performed within the framework of the measurement model. After the measurement model, the structural model was used to analyze the hypothetical relationship among latent variables: managerial accounting and internal process. The above analyses were carried out in the software packages SPSS Statistics 23 (exploratory factor analysis) and SPSS Amos 23 (structural equation model).

3.3. Exploratory factor analysis

In the initial phase of empirical analysis, exploratory factor analysis (EFA) was used for the preliminary evaluation of scales. With the information collected in the surveys, a principal components analysis with Varimax rotation was completed on nine items to distinguish the factorial structure of the set of observed variables. The validity of the factor analysis was confirmed through the KMO with a value of 0.842, and Bartlett's test ($\chi^2 = 1,643.477$, $P < 0.001$) supported the factorability of the item set. A 2-factor solution with eigenvalues greater than 1.0 and excluding all factor coefficients less than 0.5 formed factors related to managerial accounting (MA) and internal process (IP) and explained 65.438 % of the variance in the data.

Before the measurement model, the suitability of the instrument reliability was tested using Cronbach's alpha coefficient. The Cronbach's alphas were 0.847 for managerial accounting (MA), 0.874 for the internal process (IP), and 0.828 for the total scale. Reliability analysis indicated that all variables have appropriate Cronbach's alpha coefficient.

3.4. Measurement model

Following EFA, the confirmatory factor analysis (CFA) was derived to determine whether the hypothesized measurement model fitted the data set. Several goodness-of-fit measures were used to assess the measurement model's validity. According to the recommendation of Jackson, Gillaspay, and Purc-Stephenson (2009), univariate and multivariate normality estimation was examined before CFA. The univariate normality was tested using normality tests (the Kolmogorov-Smirnov test) through SPSS Statistics 23 software, and the results showed non-normality. Skewness and kurtosis values of all variables are within the -2 and +2 tolerable range. The multivariate normality was tested by calculating Mardia's coefficient using AMOS Graphic 23.0 software. The results indicated that the multivariate normality assumption was unmet (Mardia's coefficient was higher than 5, and the critical value was higher than 1.96). As the assumption of multivariate normality was not encountered, the bootstrapping resampling procedure was required when evaluating the structural model. The bootstrap resampling system does not hang on to any assumption about the distributional character of the population (Nevitt & Hancock, 2001). For managing nonnormality, a Bollen-Stine was run on 2000 bootstrap samples. AMOS identified that the Bollen-Stine bootstrap p-value was 0.056 ($p > 0.05$), confirming that the model fits the data well.

Data were also checked for multivariate outliers (Mahalanobis's distance), and the outcomes indicated outliers. However, when the explanations for the anomaly of the results cannot be reliable, it is not rational to remove the grades just because of their atypicality concerning deviations (Thompson, 2004). Accordingly, recognized outliers were not deleted, and the final sample contains 416 respondents.

An assessment of the assumed model shows χ^2 of 39.003 with df 25. CFA indicated that the unidimensionality condition is achieved. The presence of convergent validity and reliability was suggested by composite reliability (CR), average variance extracted (AVE) and Cronbach's alpha values (Table 2).

Table 2: Convergent validity and reliability measurements for variables

			Factor loadings	Cronbach's alpha	CR	AVE
MA6	<---	MA	0.520	0.847	0,854	0,498
MA5	<---	MA	0.686			
MA4	<---	MA	0.760			
MA3	<---	MA	0.831			
MA2	<---	MA	0.744			
MA1	<---	MA	0.653	0.874	0,874	0,698
IP2	<---	IP	0.862			
IP1	<---	IP	0.807			
IP3	<---	IP	0.836			

Source: Author

The discriminant validity analysis indicated that the square root of the average variance extracted was higher than the correlation between latent variables, so the discriminant validity for all constructs was accomplished (Table 3).

Table 3: Discriminant validity analysis for constructs

	MA	IP
MA	0.706	
IP	0.276	0.804

Source: Author

Several goodness-of-fit measures were used to test the overall model fit. A fit statistic indicator chi-square p-value was 0.002. The P-value should be insignificant to indicate the model fit, but the chi-square goodness of fit is sensitive to sample size, so it should not be the only measure used for concluding model fit (Bollen & Long, 1993). Consequently, several fit indicators were considered. The fit indicators of the 9-item model were very good and showed a good model fit (Table 4).

Table 4: Overall model fit summary

	Indicator	Values
Absolute fit	Discrepancy Chi-Square (Chisq p-value)	0.002
	Root Mean Square Error of Approximation (RMSEA)	0.048
	The goodness of Fit Index (GFI)	0.973
Incremental fit	Adjusted Goodness of Fit Index (AGFI)	0.953
	Comparative Fit Index (CFI)	0.985
	Tucker-Lewis Index (TLI)	0.979
	Normed Fit Index (NFI)	0.969
Parsimonious fit	Chi-Square/Degrees of Freedom (Chisq/df)	1.962

Source: Author

RMSEA (Root Mean Square Error of Approximation) represents the root of the average squared error of approximation and has to be less than 0.08 (Browne & Cudeck, 1992). It is considered ideal if it is less than 0.05 (Stieger, 1990). The RMSEA value in this research was 0.048.

GFI (Goodness of Fit Index) is a measure of absolute fit, and it is considered that it should be > 0.9 for the model to be adequate (Byrne, 2016). The GFI of the subject research of 0.973 showed that the fit of the model was adequate.

For the value of AGFI (Average Goodness of Fit Index), it is considered that the desired value is > 0.90 (Tanaka & Huba, 1985). The value of AGFI was 0.953, indicating a good incremental model fit.

The value of the CFI indicator (Comparative Fit Index) should be > 0.90 to be considered representative of a good model fit (Bentler, 1992). The CFI was 0.985 and indicated a good fit for the model.

The TLI (English Tucker-Lewis Index) indicator of incremental fit has a typical range between 0 and 1 and a value close to 0.95, pointing to a good fit of the model (Hu & Bentler, 1999). Considering that the value of TLI was 0.979, it was concluded that adequate suitability of the model was achieved.

The NFI (normed fit index) indicator of incremental fit has a range from 0 to 1, and values > 0.90 are considered to be representative of good model fit (Hu & Bentler, 1999). The NFI was 0.969 and indicated a good model fit.

For parsimonious model fitting, the Chisq/df indicator (chi-square/degrees of freedom) is mainly used, and it is considered that there is a good model fit if the indicator is less than 2 or 3 (Kline, 2015). However, in recent times, some authors believe that the value of the indicator should not be > 2 because that already indicates inadequate adjustment (Mia, Majri & Rahman, 2019), which is why in this research, it was concluded that the value of the indicator of 1.962 was acceptable.

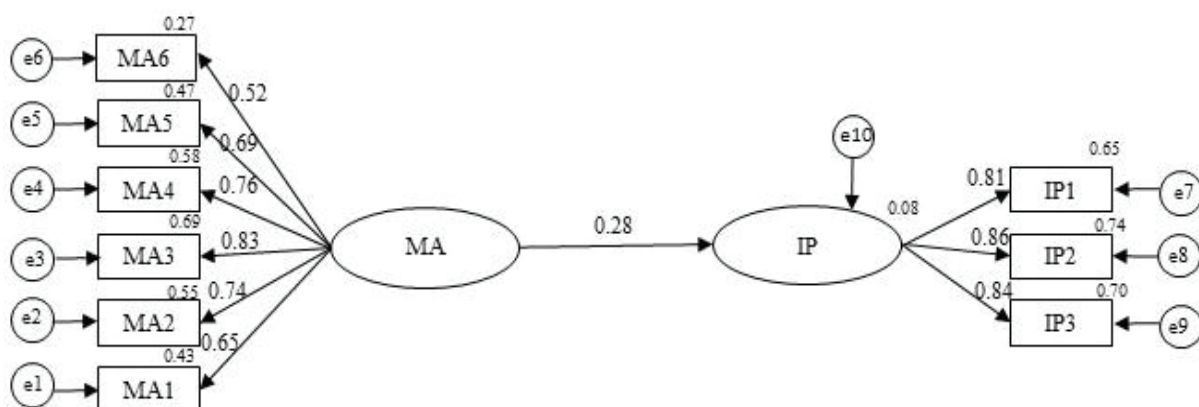
In summary, there was sufficient evidence to proceed with path analysis in the structural model because, through the measurement model, it was obvious that the assumptions of one-dimensionality, validity, and reliability were met, independently non-normally distributed data in the case of this sample.

3.5. Structural equation modelling

Covariance-based structural equation modelling (SEM) was performed using the bootstrap maximum likelihood estimator to test the hypothesis. The structural model (Figure 1) was presented by two interrelated latent variables (managerial accounting and internal process) enclosed in circles. Manifest variables are enclosed in rectangles. The single-headed arrows which connect the latent variables to manifest variables represent the link, i.e. factor loadings among the latent constructs and their relevant set of observed variables.

In the model shown in Figure 1, there are 45 different elements, of which 19 are parameters to estimate, leaving 26 degrees of freedom. Based on the above data, it was concluded that it is a preidentified model. The sample size corresponds to the N:q rule, for which the generally proposed ratio is 10:1 to 20:1 (Kline, 2015).

Figure 1: Structural model: standardized solution



Source: Author

The Chi-square was 51,013 with 26 degrees of freedom ($p < 0.001$), so the other fit indicators of the created SEM model were calculated (GFI: 0.973; RMSEA: 0.048; AGFI: 0.953; CFI: 0.985; TLI: 0.979; NFI: 0.969; Chisq/df: 1.962). The goodness of fit indicators in this research achieved the suggested values, showed that the structural model satisfactorily fit the data and stated an adequate basis for testing the proposed hypotheses.

The standardized structural coefficients are significant and have a positive direction, so the hypothesis is accepted. Standardized structural coefficients are visible in Table 5.

Table 5: Hypothesis testing - structural model results

Hypothesis	Estimate	p-value	Results
H1	0.276	***	H1 is supported

*** $p < 0.001$.

Source: Author

As was hypothesized, managerial accounting in nonprofit organizations has a significant and positive influence on improving internal organization processes – one dimension of nonprofits' organizational performance ($\beta = 0.276$, $p < 0.001$).

Empirical results from this study are consistent with previous literature on managerial accounting in the for-profit and public sectors. Results of the positive influence of managerial accounting on improving internal organization processes (a proxy for nonprofit organizational performance) are compatible with the findings in the for-profit and public sector, which emphasized that managerial accounting enables understanding and clarity of organizational goals, their subsequent monitoring and control and appropriate coordination between different subunits (Otley, 1980; Abernethy & Brownell, 1999; Davila & Foster, 2005; Verbeeten, 2008).

In addition, empirical findings from this study are also following the results of previous studies in the nonprofit sector, which found that the use of managerial accounting techniques in nonprofit organizations enables the participation of staff in improving operations, assisting NGOs' efforts to advance operative processes, enhance the process of decision-making and enhances the success in community engagement (Ip, Li & Yau, 2003; Chenhall, Hall & Smith, 2010; Henderson & Lambert, 2018; Perica, 2021).

In summary, this study's findings illustrate managerial accounting's potential to improve nonprofit organizations' internal processes. Nonprofit organizations should adopt managerial accounting techniques to increase efficiency.

4. Conclusions

In contrast to the for-profit and public sectors, where numerous authors examined managerial accounting techniques, studies on managerial accounting and its impact on performance in the nonprofit sector are still rare. The research answers this gap in previous studies in managerial accounting in the nonprofit sector. This study integrates knowledge from previous research in managerial accounting in the for-profit and public sectors and conceptual assumptions and previous research in the nonprofit sector. This research contributes to improving knowledge about the use of managerial accounting in nonprofit organizations and its influence on one dimension of the performance of nonprofit organizations, i.e. improvement of internal processes. These findings suggest that nonprofit organizations should implement managerial accounting techniques to help them improve success in improving the internal process.

In management accounting studies, the abilities of SEM have only to some extent been utilized (Nitzl, 2016), especially in the context nonprofit sector. This study advances the methodology

in managerial accounting research in the nonprofit sector by applying SEM to evaluate unobserved and observed variables and consider their relationships simultaneously.

This study contributes to both practical and theoretical knowledge, but this study must also be read in light of some limitations, which suggest recommendations for further research. First, data were collected at the only point in time. In contrast, it would be recommendable to examine longitudinal data to evaluate if managerial accounting techniques over an extended period help improve the internal process in organizations. Further, like in all survey studies, the bias of respondents cannot be fully controlled. Moreover, the participants come from a single state, Croatia. Future research could gather survey information from respondents from other countries using the instrument developed in this study to improve the validity of the research and enhance the reliability of the research findings. Replicating this study on organizations from other states will also allow the generalization of the findings of this study. Finally, this study used a specific aspect of the nonprofit's organizational performance, i.e., improvement in internal processes. The performance of nonprofit organizations should cover a reasonable set of criteria that will allow different individuals to have different perspectives on the evaluation of the achievements of a particular organization (Brown, 2005). Future studies could examine some other views of the performance of nonprofit organizations. The stated limitations do not reduce the contribution of this research. This study adds some new knowledge to managerial accounting research in nonprofit organizations and calls for additional attempts to progress the operationalization of the concept of performance in nonprofit organizations, including some other dimensions of performance.

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A scientific paper

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**ONLY IDEA OR GREAT OPPORTUNITY –
THE RESULT OF UN SUSTAINABLE DEVELOPMENT GOALS
IMPLEMENTATION**

ABSTRACT

Creating a better world free of poverty and inequality, where people can enjoy health and justice and have the opportunity to thrive while sustaining the planet, are the goals of the United Nations Sustainable Development Goals (UN SDGs). These goals are presented as part of 17 targets (the 2030 Agenda). While heavily promoted and widely accepted, it appears that some goals (and actions) are lagging - still just promises, with no results. While some goals are well covered, including by research, others are still just ideas. Small and medium enterprises (SMEs) are seen as very important players in achieving the goals and changing the world towards a better future. SMEs should bring innovation, entrepreneurial skills and attributes, efficiency and resources that will lead to poverty reduction. Although they are important for achieving the goals of UN SDG, there is limited research on the application of the goals by SMEs and the understanding of the goals among SMEs. The main objective of this paper is to identify and review the most relevant research, findings, and reports on the uptake of the UN SDGs by SMEs, explore the role of SMEs in the implementation of the goals, but also provide some recommendations for further research on implementation of the goals. An integrative literature review of current research findings will also identify gaps that would be worth exploring further.

Key words: *UN Sustainable Development Goals, sustainability, small and medium-sized enterprises, integrative literature review.*

1. Introduction

Globalization, international trade, current economic trends and flows, growing insecurity, climate change, and increasing economic and social inequalities have led the United Nations (UN) to reflect on the future and try to create a more equitable and sustainable world for all (Lendel and Varmus, 2013; Šebestova and Sroka, 2020). The result of this reflection is the UN Sustainable Development Goals (UN SDG's), which are successors to the eight Millennium Development Goals. The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, "offers a shared blueprint for peace and prosperity for people

and the planet, now and in the future" (United Nations, Department of Economic and Social Affairs, 2015). The UN SDG' consists of 17 goals and 169 targets focused on working together, combating climate change, and improving the lives of all people. They are "*wide-ranging collection of goals*" (Smith et al., 2022) that involves national governments, but also different institutions on global level (Bebbington and Unerman, 2018). In the literature, they are often seen as "*an important step in the transition to a sustainable world*" (Costanza et al, 2016, p. 59), to bring peace and prosperity around the world, to secure human rights, gender equality, to end poverty, protect the planet and ensure prosperity - to solve so called "wicked problems" (The 2030 Agenda for Sustainable Development, 2015). Therefore, all governments in the world have agreed that the Global Goals for Sustainable Development must be achieved by 2030 (Verboven and Vanherck, 2016). However, although defined on global level it is crucial to translate SDGs on organization level, to prepare them as guidelines that will enable engagement of enterprises (de Villiers et al., 2021). Enterprises, especially small and medium-sized, have unique capabilities to follow UN SDGs (Di Vaio et al., 2020). In UN Global Compact's white paper (UNCG), there is explicitly emphasized that crucial role in accomplishing SDG have enterprises "*no matter how large or small, and regardless of their industry*" (UNGC, 2021). But, despite growing interest of the SDGs, there is limited understanding of how these goals can be operationalized in practice (Roome and Louche, 2016). SMEs, according to Klewitz and Hansen (2014), struggle in understanding the role they could and should take in the SDG framework, that makes their engagement challenging (Pizzi et al., 2021). The aim of this paper to review literature that investigates the connection between SDGs and the role of SMEs in their promotion and fulfillment, but also to identify benefits that SMEs have from adapting their business to the SDGs framework.

2. Small and medium-sized enterprises (SMEs) and sustainable development goals (SDGs)

According to Smith et al. (2022), the SDGs are a call to action for governments, businesses, and communities to rethink and reshape the relationship between business, society, and the planet. Scheyvens et al. (2016) see businesses, especially SMEs, as critical to achieving the SDGs because they have the power to carry them, including innovation, responsiveness, efficiency, and provision of specific capabilities. SMEs can achieve more in adoption of SDG because of their "*fighting mentality, resource limitations, informal strategies and flexible structures*" (Smith et al., 2022, p. 113). The Johannesburg Declaration states that "*the private sector, including businesses large and small, has a duty to contribute to the development of just and sustainable communities and societies*" (UN, 2022, para. 27). Other important documents (CERES Principles, ICC Business Charter for Sustainable Development, OECD Guidelines for Multinational Enterprises) call on enterprises to promote sustainable development. However, Barkemeyer et al. (2014) claim that sustainable development principles are quite narrowly defined, and SMEs do not fully understand how to implement them (Pizzi et al., 2021). Although many SMEs make significant contributions, "*the often rosy "triple-win" rhetoric around the SDGs presents a fundamentally unrealistic picture*" (Scheyvens et al., 2016, p. 380) and ignores the different visions of various stakeholders. Smith et al. (2022) emphasize the paradoxical nature of SMEs: as individuals, they have a small and limited impact, but collectively, their potential impact on society is huge. On the other hand, despite the enormous interest of researchers in the SDGs and their implementation in the private sector, research has mainly focused on large enterprises neglecting SMEs (Mio et al., 2020). Although UN promotes collaboration between different actors, Smith et al. (2022) conclude that prior research was mainly focused on strategic adaptations of conclusions and results from large businesses about sustainable development at SME level.

SMEs play significant role in every economy. SMEs are most important part of global economy and engine that generates economic growth (Androniceanu, 2019) and important agent in SDGs promotion (UN, 2015). But, to become sustainable business is not easy. The SDG adoption involves costs of their implementation. According to Stoykova (2014), there are reactions from manufacturing industry that "*becoming green is too expensive*" (p.3). Enterprises are simply concerned about the costs of SDG implementation and their profitability, since their primary concern regarding implementing and fulfilling SDGs is financial performance (Stoykova, 2014). SDGs implementation provides sustainability and involves long-term planning. Sustainability is defined by the World Commission on Environment and Development (WCED, 1987) as development that enables the needs of the present generation to be met without destroying the needs of future generations. Under the term "sustainability" some scholars propose correlation with the correct use of natural resources (Sheth et al., 2011), while other consider it in a broader way that include different dimensions of business and needs of stakeholders (Wheeler et al, 2003; Bonfanti et al, 2022). The organizational culture in SMEs is, according to Nygaard et al. (2022), combination of informal structure and short-term planning and therefore without strategic thinking. They have found three central negative factors that hinder SMEs in SDGs implementation: lack of resources (mainly knowledge), comprehensive and global formulation and missing guidelines (Nygaard et al., 2022, p. 8). Nygaard et al. (2022) also comment that SDGs are quite comprehensive and complex by nature. For their implementation, a wide range of competencies are needed, which SMEs do not possess. Data from Denmark show that significantly less SMEs have knowledge about SDGs and incorporate them, compared with large enterprises (Nygaard et al. 2022). However, SMEs that incorporated SDGs show positive characteristics: direct communication lines, good execution ability and agility. Whelan and Fink (2016) claim that key benefits from sustainable development are: creation of shared value through stakeholders' engagement, improved risk management, fostered innovation processes, improved financial performance, engagement of employees and built customer loyalty. Nygaard et al. (2022) concluded that positive effects can be seen in taking responsibility and leading the way, social license to operate, communication and interaction, inspiration, and innovation. Many SMEs are pushed in implementation of SDGs by their customers (UN, 2020). Research results, according to Muhmad and Muhamad (2020), reported a positive relationship between sustainability practices and financial performance in post-SDG implementation, although implementation led to lower profitability in short-term period (Ma et al., 2017).

Research on positive effects of the SDGs adoption in SMEs are dominant in analyzed literature. On the side, concerns and criticism, negative effects and quantitative research results are scarce. Villegas (2023) in analysis of validity of the prevailing arguments against the use of sustainable development strategies in the capital markets concludes that SDGs are subjective, that their implementation requires sacrifice of returns, that they are redundant and that they turn away enterprises from the most important issues and that they are virtue signaling. To make one step forward, more research that will cover both, negative and positive sides are needed.

3. Methodology

Research on the impact of SDG implementation in SMEs is a relatively new and growing field. Knowledge production on this topic is accelerating, but at the same time is very fragmented and does not cover all aspects and implications of the problem. The term sustainability is usually associated with environmental protection, often neglecting the business perspective on the issue. The SDGs are too broad defined and are sometimes equated with the concept of corporate

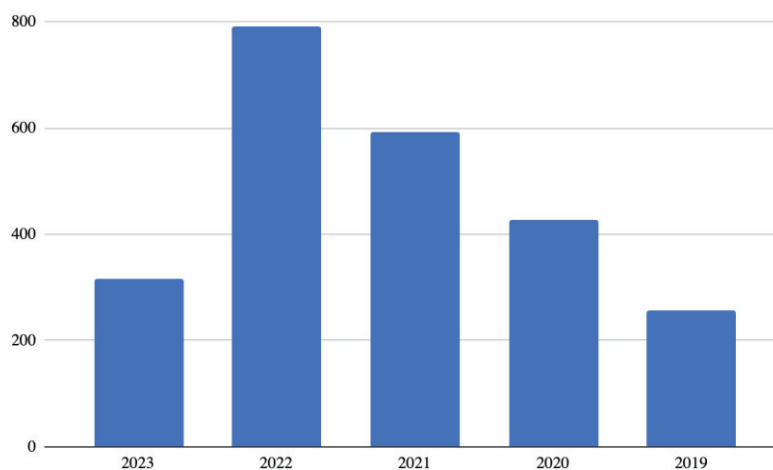
social responsibility (SCR) or environmental, social and governance (ESG) especially in large companies. Review of different reports points out that the term ESG is more common and more recognizable among practitioners. To the best of our knowledge, there are no papers that address the differences between these terms.

The purpose of this paper is to provide an overview of the implementation results of the SDGs in SMEs and to provide guidelines for future research. The research will be supported by a discussion of the importance of SDG adoption in SMEs to engage readers in the topic (Toracco, 2005).

Since the goal of this thesis was not to cover all published works on this topic, but rather to combine different perspectives and propose a new theory or conceptual model (Snyder, 2019), or research direction, an integrative literature review can provide the most accurate answers. An integrative literature review is used when examining a new or emerging topic that has a growing number of publications that may contain contradictions not fully covered in the literature or research conducted (Toracco, 2005). An integrative literature review can provide a fresh, new perspective on the topic (Toracco, 2005). According to Snyder (2019), the integrative literature review is a typical approach to critique and synthesis, the research question is narrow, and the research strategy is usually not systematic. The integrative literature review should include research articles, books, and various reports. Analysis and evaluation are qualitative.

Since the success of UN SDGs implementation in SMEs should be practical knowledge, grounded on results of scientific research results, the literature review in the paper was made from two database. Google Scholar database, but also Scopus database are used for this review. Database searches were conducted using relevant keywords: "Sustainable Development Goals (SDGs)" and "small and medium enterprises", "sustainable development and small and medium enterprises". The result of the search on Google Scholar, in the period 2019 till 2023, was 2,385 papers. Since the Google Scholar database does not follow only most influential journals, only papers with double review were chosen.

Figure 1: Search result for articles on the implementation of the SDGs in the SME sector

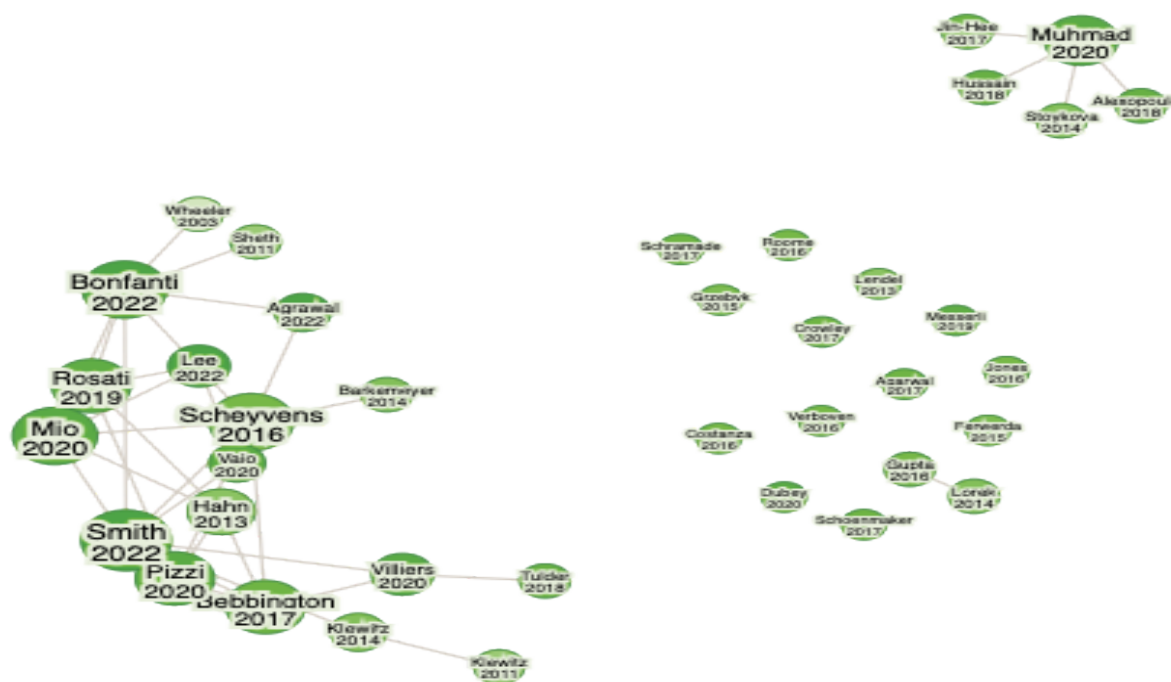


Source: Google Scholar

To gain insight into the literature findings to date, the most important and most cited papers from 2019 to 2023 was consulted. A total of 62 different papers, books, publications, reports, and Internet sources were analyzed. A research paper was considered eligible if it addressed the SDGs in relation to SMEs and it was a peer-reviewed paper. Books, publications, and reports

were eligible for this research if they specifically addressed the implementation of the SDGs in SMEs. For finding connections, only 42 papers were eligible. Connections between papers in our collections were analyzed with the Research Rabbit tool.

Picture 1: Connections between papers from the Google Scholar collection

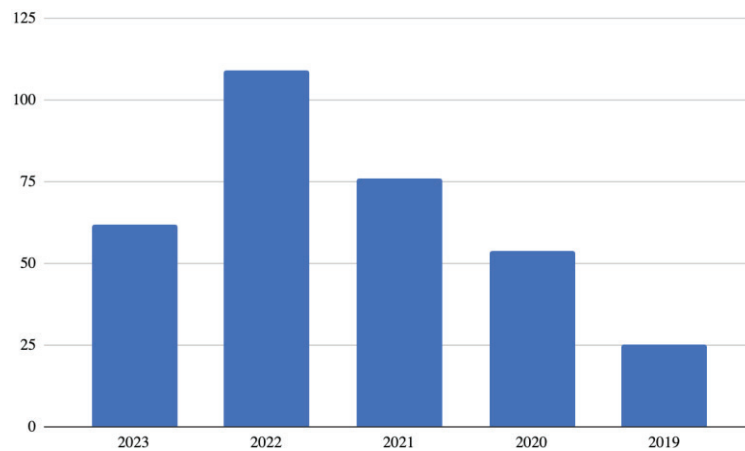


Source: Research Rabbit

Google Scholar database, although criticized that citation practice disadvantages pioneering scholars with bold ideas, scholar from minority groups (smaller research communities, women, and solo authors) and citation does not provide accurate assessment of the impact that the paper and authors provide (Jensenius et al., 2018) still has several advantages. The database is easy to handle, provides quick overview of publications, rank-ordered by the number of citations (Jensenius, 2018). According to Harzing (2010) journal coverage of Google Scholar is superior to both Scopus and Web of Science database.

However, other researchers (Meho et al., 2008) conclude that for accurate citation counts all three resources (database) should be used. But, when searching for small scale citation patterns (journals, conference proceedings, etc.) both databases should be used to get accurate ranking. When searching for larger scale categories, Meho et al. (2008) suggest using Scopus database. The second collection of paper, collected from the Scopus database, for the same period (2019-2023), resulted in 325 review and research articles.

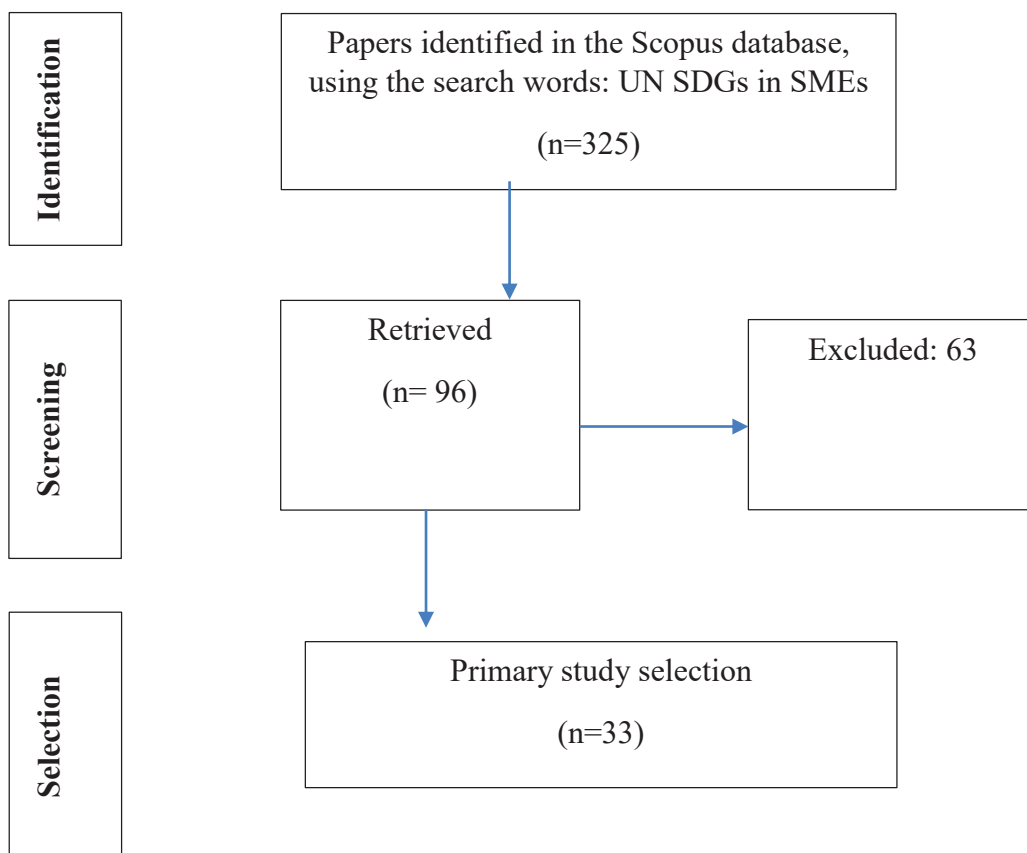
Figure 2: Search result for papers (review and research) on the implementation of the SDGs in the SME sector



Source: Scopus database

All papers that were not focused on sustainability of SMEs, introduction of UN SDG in SMEs, or implication that UN SDGs have on performance or development of SMEs were excluded from the primary research.

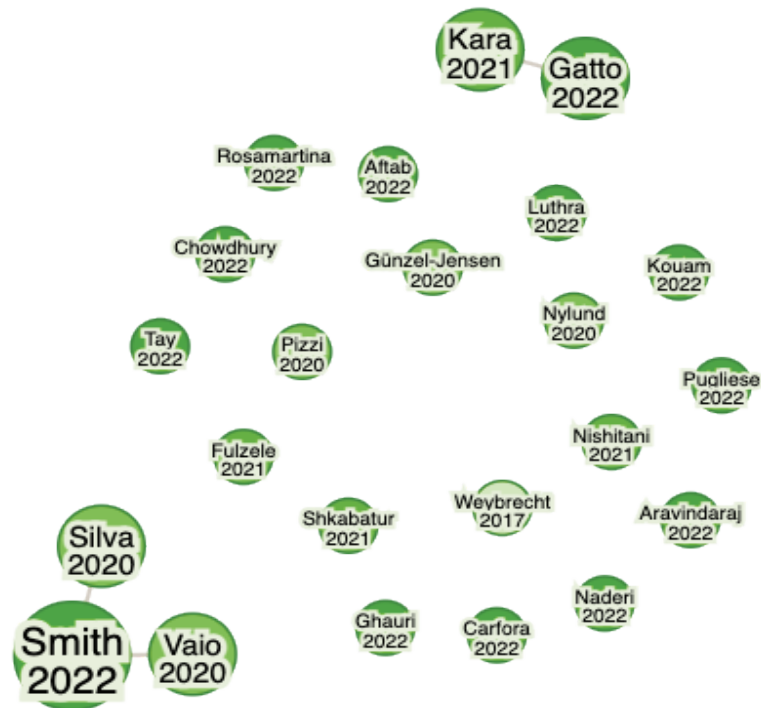
Figure 3: The literature selection approach employed in this paper



Source: Adapted from the Aravindaraj et al. (2022), p. 3

After analysis of all suggest papers by Scopus, 33 papers were selected. First part of analysis was focused on searching connections between selected papers. Every connection between papers suggest citation. Selected papers from the Scopus database, although published in the high-ranking journals are less cited than those selected from the Google Scholar database.

Picture 2: Connections between papers from the Scopus collection



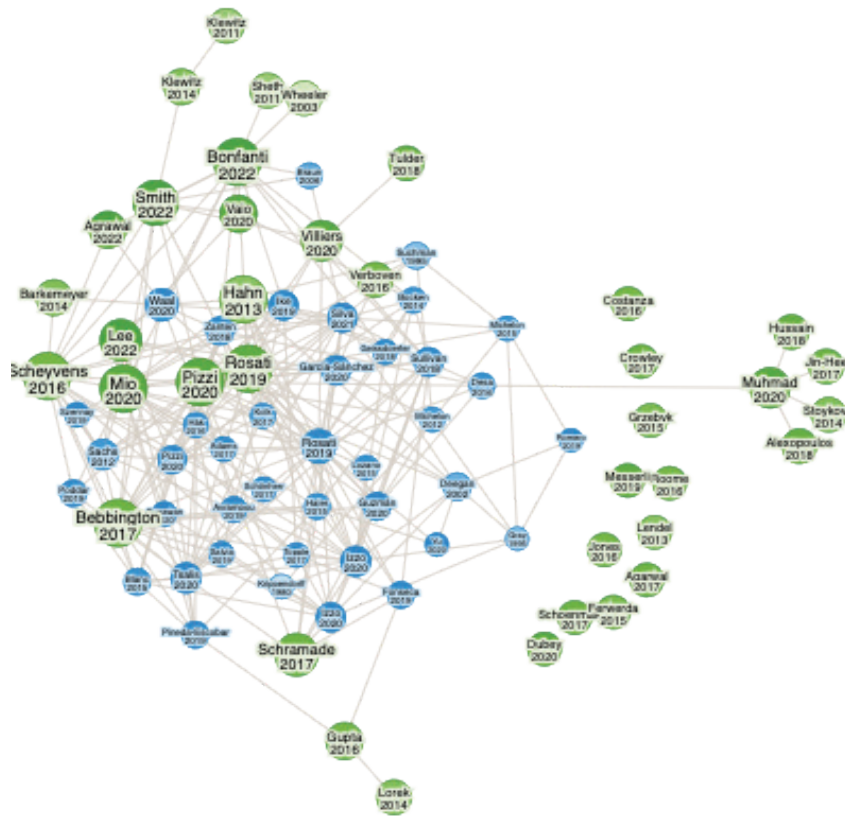
Source: Research Rabbit

Integrative literature review requires creative way of collecting data (Toracco, 2005; Snyder, 2019), combining perspectives and conclusions from different publications. Although creative, process must be transparent. For this review, different views from different journals have been chosen. The purpose of the integrative literature review is to evaluate, critique, and summarize the literature, but with the goal of providing new perspectives on the topic (Toracco, 2005). Since the SDGs are a new topic and an emerging topic based on the number of papers published in the last three years, an integrative literature review was chosen. The goal of this paper was to review, but also propose new research directions.

Therefore, further analysis of the selected papers from the Scopus database was done. Papers were analyzed by justification of the research, organizational focus, focus on SDG literature, chosen research method and framework and models (Guthrie et al, 2012, p. 71).

The first criterion, *Justification*, divides the contributions according to their empirical basis: from supranational (general) to those analyzing a single organization. The second criterion, *Organizational Focus*, divides the papers by the focus of the research: from multinational to general. The third criterion describes the *Geographic location* of the research: North America,

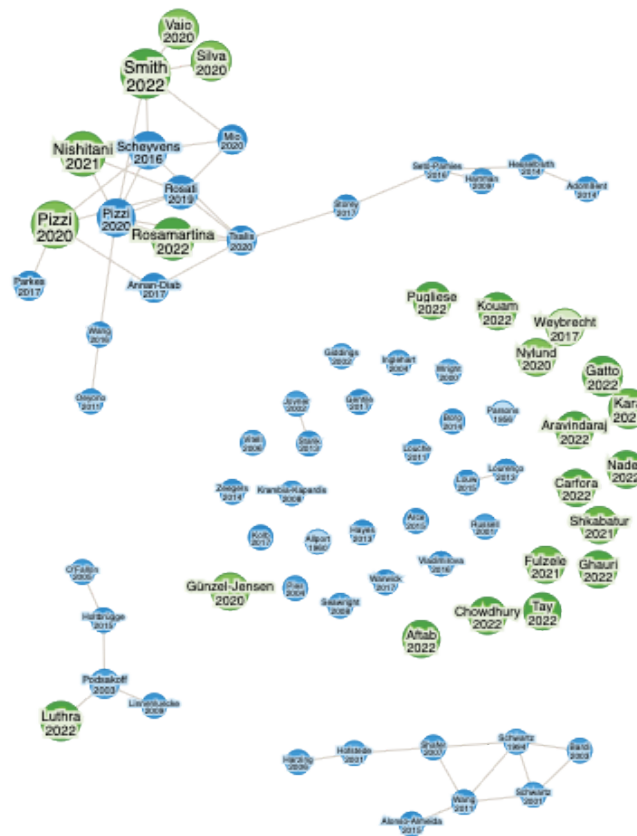
Picture 4: Connections between selected papers (Google Scholar sample) and 40 similar papers



Source: Research Rabbit

Connections between papers are strong, both between papers in the sample and similar papers, which suggests that research results and conclusions are questioned and checked.

Picture 5: Connections between selected papers (Scopus sample) and 49 similar papers



Source: Research Rabbit

Number of citations from the Google Scholar sample provides the same conclusion.

Table 1: Top 5 journals from the Google Scholar sample

Journal	Number of analyzed articles	Number of citations
Journal of Cleaner Production	4	1,888
Sustainable Development	3	486
Business Strategy and the Environment	3	119
Journal of Business Research	3	171
Corporate Social Responsibility and Environmental Management	2	95

Source: Authors

While papers from the Google Scholar data are more cited, top 5 journals from the Scopus sample, although cited provide more insights and novelty to theory building.

Table 2: Top 5 journals from the Scopus sample

Journal	Number of analyzed articles	Number of citations
Journal of Cleaner Production	10	334
Journal of Business Research	5	234
The International Journal of Management Education	2	83
Journal of Business Venturing Insights	1	30
Journal of Environmental Management	1	21

Source: Authors

Some of the goals, especially those that are simple and easy to implement are well covered, while the other, like reducing poverty, are not analyzed, in the scope of SMEs, at all.

5. Conclusion

The research results of all the selected and analysed papers from both databases suggest that despite the growing body of literature, there are still gaps that call for further research. The majority of papers focus on explaining the meaning of SDGs inclusion in SMEs, providing theoretical background and findings based on qualitative research. Papers presenting new models are still rare. The majority of the authors chose a supranational empirical database, which provides the opportunity to compare and find differences between the selected samples and conclusions. Although the focus of the work is on the adoption of SDGs in SMEs, researchers often chose to expand their research interest to multinational companies or to compare both samples. Conclusions from this work suggest that large, multinational companies UN view SDGs through the lens of corporate social responsibility.

The Google Scholar database is not often selected for literature review, but the research findings suggest that researchers, especially from developing countries, typically use this database to build their theoretical background and build new knowledge on top of it. The Google Scholar database, although criticised, is free and covers most journals and other publications.

Further research should focus on the links between different stakeholders and the impact that the introduction of UN SDGs might have on their relationships. According to the research findings, further research should cover the impact of SDGs on SMEs in the Americas, but also allow for comparison based on geography. Few papers in the sample focused on external reporting and non-financial reporting, indicating a gap in the literature. Papers providing historical analysis and analysing previous models were not found in our survey.

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A scientific paper

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PARA SWIMMING: DEMOGRAPHIC, GEOGRAPHIC AND ECONOMIC FACTORS OF MEDALS WON AT THE SUMMER PARALYMPIC GAMES FROM 2000 TO 2021

ABSTRACT

The main purpose of this work is to determine the correlation between the number of participants, economic, geographic and demographic variables and the success of countries participating in Para swimming at the Paralympic Games between 2000 and 2021. The study was done on a total of 52 countries that have won at least one medal in at least one Paralympic Games (n=52). The dependent variable is the total weighted number of medals won, while the independent variables are economy (GDP per capita in \$), geography (area of the country in km²), demography (population number) and the total number of participants from each country at the Paralympic Games. The Shapiro-Wilk test was used to determine the normality of the data and due to the large sample (n=52), we used Pearson's correlation coefficient (r). A high correlation was found between the dependent variable and the surface of the country (r=0.65) and population (r=0.62). Also, an almost perfect correlation was found between dependent variable and the number of participants (r=0.95). A high correlation was found between the number of participants and the variables surface of the country (r=0.65) and population (r=0.55), but also between the population and the surface of the country (r=0.59). No correlation was found between the dependent variable and GDP per capita (r=0.04). The conclusion is that countries with a larger area and population have a larger base of Para swimmers and participants in the Paralympic Games and therefore a better selection of Para athletes who can win a Paralympic medal. It was also concluded that GDP per capita is not a guarantee or a predictor of winning a medal.

Key words: *Para swimming, world countries, paralympic medals, economic, geographic, and demographic variables, predictors.*

1. Introduction

„The Paralympic Games is about transforming our perception of the world.“- Stephen Hawking

The Paralympic Games developed from a small competition for war veterans in 1948 in Stoke Mandeville under the organization of Dr. Ludwig Guttmann, where 16 wheelchair competitors gathered. The competition later grew into the Paralympic Games, which were held for the first time in Rome in 1960 with 400 participants from 23 countries. The International Paralympic Committee (IPC) as a head organization officially began its work in 1989, while until that year it operated under different names and associations of different international organizations (IPC, 2022). Bailey traced and explained the mechanics of the development of the Paralympic movement over the last 50 years (Bailey, 2008, 12). The movement's focus being that Para sport can generate change in three key areas: behaviour, mobility and opportunity. The ultimate achievement and dream of every para-athlete is to perform at the Paralympic Games. To see how significant the evolution of this event is, it is important to note that at the last Summer Paralympic Games in Tokyo 2020 (held in 2021), a total of 4403 para-athletes competed and a total of 1668 medals were awarded.

When talking about Summer Olympic Games we could ask ourselves how much winning a medal is determined by individual athletes' talent, abilities, and training and how much by other determinants of their country of origin. Studies have found that numerous socio-economic variables are reliable predictors of an athlete winning an Olympic medal. In most scientific papers, it has been shown that GDP itself isn't a predictor, but it correlates with number of factors that impact athlete's environment which greatly affects sports success. Countries population is another important variable as it provides widespread pool of talent and in combination with high GDP per capita should produce medal winner athlete (Bredtmann et al., 2016, 22-25). What this means is that rich countries with large populations, provided athlete's talent is uniformly distributed worldwide across the population, can provide more leisure activities, better medicine care and afford the best professionals in branches of sports and sports infrastructure for more effective training. Also, research by Xun has shown U-shape relationship between political freedom and medal shares (Xun, 2005). A 2021 paper by Makiyan and Rostami has shown positive correlation between hosting as well as previous Olympic Games experience and winning an Olympic medal (Makiyan and Rostami, 2021, 33-39).

For now, there aren't many studies on the factors of success in Para sport and especially in Para swimming. Previous studies have mainly focused on the factors of success and medals won at the Summer Paralympic Games. There are three important studies on Para sport that dealt with this topic. The first study analysed the size of the population, the status of the host of the games and the average years of education. These 3 key socio-economic factors have shown to be important for success in Para sport and winning medals at the Summer Paralympic Games (Lui and Lui, 2022). The conclusion was that large countries had a random distribution of talent and were more likely to have talented para-athletes winning medals. The second study analysed the connection between GDP and the population number in medal-winning countries and concluded that the top of the medals table was occupied by countries with greater economic potential (Pedroso et al., 2019, 41-50). The third study showed that GDP per capita, population, number of participants per million inhabitants, being a former communist country, being a host at the Summer Paralympic Games, being a former host and surface are all in a positive correlation with the success measured by the weighted number of medals won (Buts et al., 2013, 133-147). They also show that deviation from the ideal temperature negatively affects success.

Not a single study has dealt with a single paralympic sport, considering the specific requirements of each individual Para sport. Therefore, the main objective of this paper is to determine the correlation between economic, geographic and demographic variables as well

as the number of participants and the success of countries participating at Para swimming as one of the most represented sports at the Paralympic Games between 2000 and 2021, i.e., from the Paralympic Games in Sydney in 2000 until the last games in Tokyo in 2021.

H1: There is a significant correlation between the total weighted number of medals won at the Summer Paralympic Games in the period from 2000 to 2021 and the economic indicators of the country (GDP per capita expressed in \$).

H2: There is a significant correlation between the total weighted number of medals won at the Summer Paralympic Games in the period from 2000 to 2021 and the country's geographic indicators (country size in km²).

H3: There is a significant correlation between the total weighted number of medals won at the Summer Paralympic Games in the period from 2000 to 2021 and the demographic indicators of the country (total population).

H4: There is a significant correlation between the total weighted number of medals won at the Summer Paralympic Games in the period from 2000 to 2021 and the number of participants of individual countries at the Summer Paralympic Games

2. Methods

The analysis of this paper includes all countries that won Paralympic medals with at least one medal at one Summer Paralympic Games according to the success factors of winning medals: GDP per capita (\$), country surface (km²), total population number and the number of participants of the country. Since GDP per capita and population data tend to vary more than other variables, the average data was calculated and used by processing the data of each year Summer Paralympic Games were held.

2.1. Entity sample

This study was conducted on a total of 52 countries that have won at least one medal in at least one Summer Paralympic Games. In data processing, the Russian Federation was excluded, whose athletes were banned from performing under their national identity at the Summer Paralympic Games in 2016 in Rio de Janeiro and in Tokyo in 2021 (IPC, 2016).

2.2. Variables sample

Basic economic, geographic, and demographic variables and the number of participants competing were included as predictors, which are significant factors in winning medals at the highest level of competition in a Para swimmer's career - the Summer Paralympic Games.

GDP (gross domestic product) per capita expressed in dollars (\$) was chosen as the economic variable and the first predictor, which is one of the key indicators of the macroeconomic state of a country's economy (IMF, 2021).

The surface area of the medal winning countries expressed in square kilometres (km²) was chosen as a quantitative geographical indicator of the country's territory and another predictor variable. (Worldometer, 2022)

The number of the country's population was chosen as the third predictor and macro indicator of the quantitative demographic state of the countries (World Bank Group, 2022).

The summary parameter of the number of participants at the Summer Paralympic Games of the medal-winning countries was selected as the last predictor variable.

The dependent variable is the total weighted number of medals won between 2000 and 2021. The variable is weighted in a way that each bronze medal carries 2 points, silver medal 3 points and gold medal, as the most valuable, carries 5 points (Gotal, 2017). A total of 2716 medals were awarded at five Summer Paralympic Games in the period from 2000 to 2021. According to the dependent variable, Table 1 shows the best countries in the world for the specified period, ranked from the highest rated to the lowest rated.

For the reliability of the research, the data (GDP per capita and population size) were downloaded for each year Summer Paralympic Games were held between 2000 and 2021 (except for the data for the Faroe Islands and Cuba, whose last data were available for 2020), and the arithmetic means were included in the statistical processing.

Table 1: The ranking of the countries according to the points of the total weighted number of medals won

Ranking	Country	Total number of medals	Total weighted number of medals won
1.	China	322	1124
2.	UK	267	850
3.	USA	231	807
4.	Ukraine	239	804
5.	Australia	213	685
6.	Spain	171	568
7.	Canada	143	504
8.	Brasil	97	337
9.	Netherlands	78	242
10.	Japan	71	235
11.	Italy	67	214
12.	Germany	73	212
13.	France	62	199
14.	Mexico	57	195
15.	Belarus	44	178
16.	South Africa	43	162
17.	Hungary	51	153
18.	New Zealand	38	146
19.	Poland	50	145
20.	Greece	37	119
21.	Israel	29	102
22.	Czech Republic	30	98
23.	Denmark	28	79
24.	Norway	18	64
25.	Colombia	19	56
26.	Sweden	15	52
27.	Azerbaijan	12	46
28.	Republic Korea	10	40
29.	Ireland	10	39
30.	Uzbekistan	14	38
31.	Singapore	7	30

Ranking	Country	Total number of medals	Total weighted number of medals won
32.	Iceland	7	27
33.	Cyprus	6	22
34.	Thailand	7	20
35.	Slovakia	4	13
36.	Faroe Islands	5	13
37.	Peru	4	12
38.	Argentina	5	12
39.	Cuba	4	12
40.	Portugal	5	11
41.	Chile	3	11
42.	Croatia	5	10
43.	Hong Kong	3	9
44.	Estonia	6	7
45.	Kazakhstan	2	7
46.	Belgium	2	5
47.	Austria	2	5
48.	Finland	2	4
49.	Switzerland	2	4
50.	Vietnam	1	3
51.	Lithuania	1	2
52.	Turkey	1	2

Source: Authors

2.3. Data analysis

The data was processed in the analytics system Statistica 14.0 (StatSoft Inc., Tulsa, OK, USA). Arithmetic mean, standard deviation as well as minimum and maximum were used as descriptive statistics and are shown in Table 2. The Shapiro-Wilks test was used to determine the normality of the distribution and the data shown in Table 3 show a deviation from the normal distribution ($p < 0.05$) for all variables included in statistical data processing. The parametric test Pearson's correlation coefficient (r) was used due to the large sample ($n=52$). The correlation between the dependent variable of the total weighted number of medals won and the predictor variables of GDP per capita (\$), country size (km^2), population number and the total number of participants at the Summer Paralympic Games was established. The correlation coefficients effect size was set as: <0.1 , very small; $0.1-0.3$ small; $0.3-0.5$ medium; $0.5-0.7$ high; $0.7-0.9$ very high; >0.9 almost perfect with a set statistical significance level of 0.05 (Hopkins, 2002). A negative correlation would suggest inversely proportional variables.

3. Results

Table 2: Descriptive Statistics

VARIABLES	n	Mean	SD	MIN	MAX
Total weighted number of medals won	52	168.07	259.81	2.00	1,124.00
GDP per capita (\$)	52	26,507.30	19,906.58	1,601.96	75,427.85
Country surface (km ²)	52	1,258,611.19	2,651,439.39	109.88	9,984,670.00
Population number	52	62,144,065.10	188,473,611.00	47,870.00	1,339,490,833.00
Participants number	52	61.21	68.10	6.00	262.00

Legend: n- sample size; Mean – arithmetic mean; SD – standard deviation; MIN- minimum; MAX- maximum

Source: Authors

Table 2 contains descriptive parameters of data processing that show measures of arithmetic mean and standard deviation as well as minimum and maximum values for processed variables. From the data given above, it is evident that there is a big difference between the obtained indicators, meaning that the summed minimum at the five Summer Paralympic Games for a won medal was 2 points (one bronze medal), and the summed maximum is 1124 points. We also notice big differences in the economic indicators of the countries (incomes of the poor versus rich countries), as well as in the geographical and demographic indicators of the participating countries (from small cities of countries like Hong Kong to the largest populous ones like China). There are big differences in the number of participants (representatives of individual countries) from a total of 6 to a total of 262 over 21 years.

Table 3: Test for normality of distribution Shapiro- Wilks test

VARIABLES	n	Shapiro -Wilks W	p
Total weighted number of medals won	52	0.66425	0.00000
GDP per capita (\$)	52	0.91278	0.00102
Country surface (km ²)	52	0.28897	0.00000
Population number	52	0.49883	0.00000
Participants number	52	0.75558	0.00000

Legend: n - sample size; p - probability of error in estimation; Shapiro-Wilks test

Source: Authors

In Table 3, we can read the Shapiro-Wilks test values which start with the null hypothesis that the data are normally distributed. Given that the p value of all variables in the statistical procedure is lower than the set alpha value ($p < 0.05$), we reject the null hypothesis the data are not normally distributed.

Table 4. The size of the Pearson correlation coefficient (r) of the independent variables - economic (GDP per capita in \$), geographical (surface of the country in km^2), demographic (population number of the country) and the number of participants in the Paralympic Games with the dependent variable - the total weighted number of medals won

VARIABLES	GDP per capita (\$)	Country surface (km^2)	Population number	Participants number	Total weighted number of medals won
GDP per capita (\$)	1	-0.02	-0.16	0.04	0.04
Country surface (km^2)		1	0.59*	0.65*	0.65*
Population number			1	0.55	0.62*
Participants number				1	0.95*
Total weighted number of medals won					1

Legend: * $p=0,00$

Source: Authors

Table 4 shows the Pearson correlation coefficient effect size between the independent variables and the dependent variable with a significance level of $p=0.00$. There is no statistically significant correlation of the total weighted number of medals won with GDP per capita ($r=0.04$).

From Table 4, with the level of statistical significance $p=0.00$, it is evident that there is a high correlation with the surface of the country ($r=0.65$), as well as with the population number ($r=0.62$). There is also an almost perfect correlation ($r=0.95$) between the total weighted number of medals won and the total number of participants at the Summer Paralympic Games between 2000 and 2021.

Aside from the correlation and the effect size of the independent variables and the dependent variable, we can also observe the mutual correlation of the independent variables, noticing that there is a high correlation between the number of participants and the surface of the country ($r=0.65$) as well as the number of participants and the population number of the participating countries ($r=0,55$). High correlation effect between the population number and the surface of the countries ($r=0.59$) is also visible.

4. Discussion

From the results given above, a high correlation between the independent variables can be noticed: the surface of the country, the population number and the number of participants of each country participating in at least one Summer Paralympic Games as well as the criterion variable of the total weighted number of medals won.

There is no significant correlation between the total weighted number of medals won and GDP per capita (\$) as a macroeconomic indicator of a country's economy. The above findings are in accordance with the results obtained by Krističević et al. who determined that there is no correlation between GDP and the number of medals won by European bowlers at world championships between 1992 and 2017 (Krističević et al., 2018, 522-527). Milanović and

Babić came to the same conclusions in their research on medals won by European countries in water polo between 1992 and 2018 at major world competitions (Milanović, Babić, 2019, 591-596). The research was conducted on European countries participating at major competitions and the aforementioned results are in accordance with the research of de Brosscher et al. who determined that it was not crucial how many financial resources enter the sports system, but rather how these resources were distributed within the system itself in order to achieve top results (de Brosscher et al., 2006, 185–215). GDP itself has no direct impact on an athlete's performance. However, it is a proxy variable for other factors that do have an impact (Bredtmann et al., 2016, 22-25). We can simplify and say- it's not about how much money you get for the Para swimming; it's about how that money is spent.

A high correlation between geographic and demographic macro-indicators and the total weighted number of medals won was determined in this research. Similar results were obtained in research that measured the correlation between the number of medals in athletics at the Summer Olympic Games as well as World Championships and the countries surface, population number and GDP. The conclusion was that countries with a larger population and a larger land surface ensure a better selection of the best athletes with the highest chances of winning medals at major world competitions (Caleta et al., 2021, 367-372). We can also correlate the above-mentioned results and Para swimming, where a larger population has a larger share of people with disabilities therefore ensuring a larger base of athletes, better selection and a higher probability of winning a medal. The chances for Para swimmers to win a medal are significantly higher provided there are enough sport facilities for the given population which brings us back to GDP as well as planned and systematic distribution of resources.

That finding is also confirmed by the high correlation between the variables of the population number and the surface of countries with the total number of participants of the Summer Paralympic Games between 2000 and 2021. This is supported by the almost perfect correlation between the total weighted number of medals won and the participants number of each individual country. If we look at Table 1, we can see that the most populous and largest countries occupy the first 8 places of medal winners in the overall ranking. Those countries had large participant number ensuring high probability of winning Paralympic medal.

As stated by the obtained results, we reject the first hypothesis predicting a significant correlation between the economic indicators of countries (GDP per capita expressed in \$) and the total weighted number of medals won at the Paralympic Games between 2000 and 2021. Also, according to the results given above, we accept the second hypothesis predicting a significant correlation between geographic macro-indicators (country surface in km²) and the total weighted number of medals won. We accept the third hypothesis predicting a significant correlation between demographic macro-indicators (population number) and total weighted number of medals won. The fourth hypothesis predicting a significant correlation between the total number of participants of each medal-winning country and the total weighted number of medals won is also accepted.

5. Conclusion

Para swimming and Para sports in general have gained momentum in the last two decades through marketing, media coverage, mass, quality, and popularization of sports for people with disabilities. Recently, Para swimming has shown an upward trend in results in all Para swimming classes, proof being the breaking of world records at all major competitions and is the result of training quality, the selection process, as well as the growth of Para sport itself.

There is no significant correlation between GDP per capita and the total weighted number of medals won, which means that the mentioned variable is neither a predictor nor guarantee of winning a Paralympic medal. It is not enough to invest financial resources in sports, but to administer these resources through the national system of sports and Para sports. Wealthier countries have the opportunity to direct their finances to more adequate athletes' improvement and help them in achieving top results, although in this study the correlation between GDP per capita and winning a medal was not determined. This means if a country has sufficient funds, an adequate system should be developed in order to direct those funds to necessary purpose such as training facilities and equipment, diagnosis and recovery, professional work costs, scholarships etc. A high level of correlation between geographic and demographic macro-factors with the total weighted number of medals won at the Paralympic Games was determined. More populous countries, with a large land surface have a large number of people with disabilities. Those countries have the best chance of winning Paralympic medal because of the high number of people with disabilities that go through rigorous selection system. According to the law of numbers, only the best can finish at the top. There is an almost perfect correlation between the number of participants in each country and the total weighted number of medals won, which leads to the conclusion that more populous countries have larger number of participants at the Summer Paralympic Games. Those athletes are the best among many of their country which gives them higher chances to win a medal.

A country, in order to increase chances of winning a Paralympic medal in Para swimming should have a large population and a suitable land surface with a large share of people with disabilities providing the given country has a high income and a good system that encourages inclusion of people with disabilities in sports activities such as Para swimming. Each country aiming towards the highest sports achievement should direct the income towards early involvement of people with disabilities in physical activities. If there is a sufficient number of facilities in Para swimming carrying out activities at the pool, an adequate system for talent recognition should be developed. Talented athletes then need to be provided with professional help, good training conditions, scholarships, therapeutic procedures for recovery and other factors outside the sports in order to increase the chance of success.

Research in the field of each individual Para sport, Para swimming included, contributes to new scientific knowledge that has the effect of raising the level of quality and quantity of Para sports itself. This research did not include the variable of the percentage of people with disabilities within the population of Paralympic medal winning countries due to incomplete data on the officially available UN website (UN, 2022). For this reason, there is room for further research in the future, considering the correlation between population of people with disabilities in each country and winning the Paralympic medal.

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A scientific paper

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IMPLEMENTATION OF NETWORK PLANNING TECHNIQUES FOR INFORMED DECISION-MAKING AND BETTER MANAGEMENT OF CONSTRUCTION PROJECTS

ABSTRACT

Project-oriented economic activity worldwide grows constantly, measured in generated revenue and the number of employed people in project management-oriented roles. However, only around 80% of projects successfully meet the scheduled time frame and budget. Because poor project planning is widely regarded as the leading cause of project failure, this paper aims to contribute to the scientific discourse on planning techniques by focusing on planning in construction projects. In those projects and generally in project management, network planning techniques, especially the Critical Path Method (CPM) and the Project Evaluation and Review Technique (PERT), are considered the most widely used and effective techniques. Therefore, a specific research goal has been to identify their similarities and differences, determining their appropriateness in a distinct context. The research methodology included qualitative methods and a case study. The chosen qualitative methods have been primarily induction and deduction, generalization, and specialization, and finally, comparative analysis of the mentioned planning techniques to identify and evaluate their characteristics. A conducted case study analyzed a recent construction project of a public building in Eastern Croatia, which was beneficial in supporting the theoretical framework. Research results suggested that PERT and CPM should be treated as complementary planning techniques because they provide project managers with different perspectives. Furthermore, they enable insight into possible project variations, facilitating better decision-making. Finally, applying these planning methods permits substantial savings in time and money needed for project completion, which is crucial for improving project performance.

Key words: *network planning, PERT, CPM, construction project.*

1. Introduction

Thirty years ago, one of the first and most appreciated researchers in the field of project management, Rodney Turner, defined a project as “An endeavor in which human, material,

and financial resources are organized in a novel way to undertake a unique scope of work, of given specification, within constraints of cost and time, to achieve beneficial change defined by quantitative and qualitative objectives” (Turner, 2009). Later, he simplified the definition while preserving its essence: “A project is a temporary organization to which resources are assigned to do work to deliver beneficial change” (Turner, 2009).

Other scholars and the world’s flagship professional organizations on project management agree with the vital project features stated in those definitions. The International Project Management Association considers a “project as a unique, temporary, multidisciplinary, organized undertaking whose goal is to realize the agreed deliveries within the previously defined requirements and limitations”(IPMA, 2018), while the Project Management Institute looks at a project as “a temporary endeavor undertaken to create a unique product, service, or result“ (PMI, 2011).

A decade ago, 30 percent of the global economy was already project-based (Turner, 2009), and a considerable portion of developed countries’ GDP was realized through projects (for instance, 41% of Germany’s GDP) (Nieto-Rodriguez, 2021). The same author highlighted that according to projections made by the Project Management Institute in 2017, the value of project-oriented economic activity would increase from \$12 trillion in 2017 to \$20 trillion in 2027, employing around 88 million people in jobs related to project management.

The significance of projects has become unquestionable. However, according to the data from the PricewaterhouseCoopers global survey on Project Management (PwC, 2012), only around 70% of the projects undertaken worldwide are successful in terms of meeting the scheduled time frame and budget. The latest numbers are better but still not satisfactory, not even among the top 10% of the best project management organizations, as shown in Table 1.

Table 1: Project success metrics

PROJECT METRIC	TOP 10, % (N=230)	ALL ORGANIZATIONS, % (N=4069)
INPUT MEASURES		
Adherence to schedule	86	85
Adherence to budget	83	79
Adherence to scope	75	74
Quality of work	88	71

Source: authors after PMI and PwC Global Survey on Transformation and Project Management 2021.

As poor estimation during the planning phase remains the most significant (32%) contributor to project failures (PwC, 2012:4), the authors of this paper believe it is essential to contribute to the project planning discourse. More specifically, the focus of this paper shall be on planning in construction projects, which have some particular features but are no exception regarding performance: an analysis of construction projects in Croatia shows frequent overruns of the initially planned costs, time, content, and quality (Radujković et al., 2012).

With the increasing complexity of construction projects, their planning, monitoring, and control have become essential to ensure effective project management and achieving expected performance. The task of construction planning is not only to create a plan as a document that contains a list of all the activities of a project and the anticipated resources for their realization but also to predict possible variants of execution and to create a basis for deciding on the best way to execute the work (Radujković et al., 2015). The most important decisions related to

construction project success and the quality of the construction are made during the project's planning phase (Dolaček-Alduk et al., 2007).

There are several methods and approaches to project planning. However, as CPM (Critical Path Method) and PERT (Project Evaluation and Review Technique) are the most widely used practical tools in project management (Barwa, 2017), the aim of the research in this paper is to identify their similarities and differences, determining their appropriateness in a distinct context. A relevant literature review and a case study of the construction of a public building shall support this comparative analysis. To fulfill that aim, the first chapter after the Introduction deals with the planning of projects. It is followed by the chapter on planning methods, which presents the CPM and PERT methods, respectively, and their comparison. Chapter 4 presents a case study of using planning methods during a construction project in Nova Bukovica, Croatia. After briefly reviewing of the building characteristics, the chapter elaborates on more probable project execution duration and critical path analysis. The final chapter is intended to provide a substantiated discussion of the research results. The paper ends with a conclusion and a list of references.

2. Project planning purpose

Planning cannot guarantee success, but lack of planning often leads to failure (Dvir and Lechler, 2004). Project planning can be defined as the application of knowledge, skills, tools, and techniques in implementing project activities, where the goal is to meet, if not exceed, stakeholders' expectations in project implementation (PMI 2008).

Additionally, project planning is a rational way of determining the project's beginning, implementation, and completion. It determines the direction of its future realization through all phases of its life cycle to successfully realize the set goals (Dvir and Lechler, 2004).

The most critical phases of any construction project's life cycle are definition, planning, execution, and delivery (Sharmak, 2011). The same author argues that the transition from one phase to another in the life cycle involves some technical transformation. Before the activities of the following phase, deliverables from one phase are often checked for accuracy and completeness and approved. Therefore, although planning is a discrete phase of a construction process, its importance is reflected over the whole process, as planned values are used as performance measures for deliverables.

By its very nature, project planning in construction relies on several principles (Radujković et al., 2015):

- One project – one plan, accepted by all participants as official, according to which monitoring and control shall be carried out.
- Recognizability – specific activities, responsibilities, time goals, and construction phases should be clearly and quickly readable from the plan.
- Comprehensiveness – planning should include all stakeholders and the overall content of the construction.
- Continuity of work – planning should ensure the realization of activities to be continuous, even when plan monitoring suggests plan supplements or changes.
- IT timeliness – accurate and timely distribution of information to all relevant stakeholders should be carried out.
- Support – all stakeholders should contribute to the planning process.

- Realistic goals and accurate data – construction planning is based on realistic goals, analyses, and calculations that are incorporated into the plan.
- Flexibility – all data are probabilistic, so there should be reserves in the construction plan that can compensate for minor changes or risks.

Creating an initial construction project plan begins with gathering and studying data, based on which the structural breakdown of the entire work can be defined, including activities, their relations, duration, and performers (Radujković et al., 2015). Having it put that way, creating a quality work breakdown structure (WBS) is the precondition of successful project planning.

Work breakdown structure can be described as a multi-level hierarchy of a project's discrete deliverables or tasks in a graphical representation or textual outline of the project scope. As such, it has several functions (Sharmak, 2011):

- It helps project participants develop a clear vision of the end product produced by the project.
- Through the decomposition of project scope into simpler components, WBS simplifies the management of projects.
- WBS provides the basis for integrating and assessing schedule and cost performance.
- It supports the assignment of responsibilities, the identification of resources, and the setting of the work sequence.

Similarly, other authors explain that the WBS, as a structure analysis, defines the project's activities. Then, using a network diagram, a graphic representation of the sequence of activities in the project and their interdependencies are obtained. Only after that is it possible to apply planning techniques and carry out a time analysis, in which the project's duration is determined, and the critical path is identified as the longest path of project realization in terms of time (Toljaga et al., 2014).

Appreciating all the above, it is evident that, compared to other phases of the project life cycle, planning has the most significant impact on the project. Scientists explain this by stating that the planning phase includes making the most important decisions regarding the project goals, general approach to the project, required resources, time plan, and evaluation methods (Dvir and Lechler, 2004).

3. Planning methods

Theoretically, plans can be static, showing the total data for a fixed period. However, dynamic plans are much more appropriate in construction projects due to the necessity of showing and analyzing data on different construction activities over the total construction duration (Kurij, 2009).

Several methods are available within the scope of dynamic planning, which can be categorized as numerical, tabular, and graphic planning. Graphic planning is further divided into network and line planning (Radujković et al., 2012). This paper shall focus primarily on the two most often used planning methods in the construction industry, namely network planning methods, the Critical Path Method (CPM), and Program Evaluation and Review Technique (PERT).

3.1. Critical Path Method

The critical path method (CPM) was introduced in 1957 by Morgan R. Walker of DuPont and James E. Kelley Jr. of Remington Rand. It has been an algorithm for scheduling project activities for any project - construction, aerospace and defense, software development, and others. The algorithm aims to identify the most extended sequence of dependent activities and measure the time required to complete them (Kelley and Morgan, 1959).

It can also be referred to as a project management tool that schedules and classifies critical and non-critical tasks to prevent future issues. Ultimately, it helps finish activities within a specific time range and eliminate process bottlenecks (Barwa, 2017). This is crucial since every project consists of a number of activities, each of which initiates the next. As a result, a delay in one activity affects all the others (Kerzner, 2009).

The core of CPM is to define the tasks essential for completing the project on schedule. This helps standardize large-scale projects and offers further direction for implementing, carrying out, and managing them (Barwa, 2017).

In most project plans, a time unit of one day is used in practice; it is rarely less than half a day, and most activities last from one to thirty days. However, the duration of any activity, no matter how small, simple, or repeatable, is a probabilistic category. If the activity were to be repeated a thousand times (even under the same conditions), the result would be a series of different durations. Therefore, for the duration of the activity, CPM implies using the best estimate or the most probable value from the total interval of the duration probability distribution incorporated into the plan (Liu et al., 2021).

Determining the duration by calculation is based on known data on the amount of work (Q), the required hourly rate for the unit of measure of the product (N_s), or on the planned performance (U_p), working hours (h), and the composition and number of work groups performing the work (t_s) (Mubarak, 2015). According to the same author (2015), the most likely activity duration is calculated according to the following expressions:

$$T_a = \frac{Q \cdot N_s}{R \cdot t_s} \quad (1)$$

where is:

T_a – the duration of the activity expressed in working days

Q – total planned product quantity

N_s – number of standard hours for a product unit

R – number of workers of a certain qualification participating in the work (in one shift)

t_s – number of hours of work per day in one shift

$$T_a = \frac{Q}{U_p \cdot t_s} \quad (2)$$

where is:

T_a – the duration of the activity expressed in working days

Q – total planned product quantity

U_p – planned output of the machine per hour

t_s – number of hours of work per day in one shift

There are more CPM merits to activities' duration estimates, too. Once the critical activities are determined, CPM controls all risk factors (Barwa, 2017), which is especially important in the construction industry because project management in construction has numerous specificities, primarily associated with risks related to people, means of work, materials used, and extensive technical and project documentation (Vuletić, 2010). CPM allows for the incorporation of more resources and their better utilization while also aiding in calculating the slack of each activity and provides the option to speed up the project and complete it in less time (Barwa, 2017).

CPM, on the other hand, also has some drawbacks. CPM as a planning technique can only be employed in large-scale projects divided into thousands of activities if it is assisted by effective software. If even one of the critical path activities is delayed, the CPM needs to be revised. Additionally, to effectively manage the resources during a project, the CPM's guidelines must be modified, necessitating the employment of another tool by the manager (Barwa, 2017).

3.2. Program Evaluation and Review Technique

Program Evaluation and Review Technique (PERT) was developed primarily to simplify the planning and scheduling of large and complex projects. It was developed for the U.S. Navy Special Projects Office in 1957 to support the U.S. Navy's Polaris nuclear submarine project (Malcolm et al., 1959). However, it soon found its application in other industries as well. PERT has become a standard tool ever since it was first developed. It introduced the idea of taking uncertainty into account during network planning. The developers of PERT suggested employing beta distributions for activity durations and came up with approximate formulas for the expected value and variance of activity durations (Monhor, 2011).

PERT helps integrate the information gathered from many departments and focuses on the events essential for the timely completion of a project. However, its main flaw is that it places less emphasis on costs and budgets and is more concerned with the time element (Barwa, 2017). Furthermore, the PERT analysis is subjective, and the results could become unreliable if the situation changes (Chen and Liew, 2002).

The PERT method considers uncertainties in the estimation of duration, and it is based on three different estimates of activity duration: optimistic activity duration (T_o), most likely activity duration (T_m), and pessimistic activity duration (T_p). All three activity duration estimates have their characteristics: the optimistic duration of the activity (T_o) assumes everything is going according to plan and the probability that the activity will be realized within the limits of the optimistic time or less than the optimum time is very small, e.g., 0.01; the pessimistic activity duration (T_p) assumes that in the presence of undesirable circumstances, nothing goes according to plan (Vuletić, 2010).

Each activity is joined with durations (Ajiboye, 2011):

1. Optimistic Duration T_o
2. The most likely duration T_m
3. The pessimistic duration T_p

The expected duration of the activity is calculated according to the following expression (Ajiboye, 2011):

$$T_a = \frac{T_o + 4 \cdot T_m + T_p}{6} \quad (3)$$

where is:

T_a – the expected duration of the activity expressed in the number of working days

T_o – the optimistic duration of the activity

T_m – the most likely duration of the activity

T_p – the pessimistic duration of the activity

Based on the three estimated durations of the activity, the expected duration of the activity is determined. The expected duration of the activity divides the area under the β distribution into two equal parts, which is used when solving the network diagram. The main feature of the distribution is the assumption that all duration values are within the interval of the limit values o (optimistic) to p (pessimistic).

Also, it is necessary to calculate the standard deviation and variance of the duration of the activity. The variance represents the measure of uncertainty with which the duration of the activity was estimated.

The following expression is used to calculate the standard deviation of the activity's anticipated duration:

$$\sigma_a = \frac{T_p - T_o}{6} \quad (4)$$

where is:

σ_a – standard deviation

T_p – pessimistic activity duration

T_o - the optimistic duration of the activity

The variance of the expected activity duration is calculated according to the following expression:

$$V_a = \sigma_a^2 \rightarrow \sigma_a = \sqrt{V_a} \quad (5)$$

where is:

V_a – variance

σ_a – standard deviation

The sum of the variances of the activities on the critical path is the variance of the expected duration of the project:

$$V = \sum_{i=1}^n (\sigma_a^2)_i \quad (6)$$

3.3. Comparison of CPM and PERT

According to O'Brien and Plotnick (2010), the primary distinction between the CPM and the PERT methods is that the former measures performance and the durations of defined activities, while the latter measures the reaching of defined events and the lapse of time between them. Additionally, CPM durations are defined events, while PERT durations are those of undefined activity between events. Since CPM assumes that a single value can represent activity durations, it is mainly used in projects with background experience since that enables estimates of the activity durations. On the other hand, PERT employs statistically estimated activity durations and is mostly used in projects where background experience may be insufficient (Ajiboye, 2011). The PERT analysis seeks to complete the project deadlines

within the anticipated timespan or earlier. In contrast, CPM concentrates on staying within the assigned budget since the cost is the primary consideration in the CPM process (Barwa, 2017). While the CPM technique is oriented toward activities, the PERT technique plans and manages time. Additionally, PERT employs a probabilistic model, whereas CPM employs a deterministic approach (Orumie Ukamaka, 2020). The critical path variance is often calculated as a tool for comparing the two methods. For both approaches, the critical path variance is determined using the following expression (Mubarak, 2015):

$$V_{crit.path} = \sum V_i^{crit.path} \quad (7)$$

After calculating the critical path variance, it is possible to calculate the standard deviation of the critical path of the most probable and expected project duration which is calculated according to the following expression:

$$\sqrt{V_{crit.path}} = \sigma \quad (8)$$

Finally, the more probable duration of project execution is determined according to the following expression:

$$Z = \frac{T_c - T_{CP}}{\sigma} \quad (9)$$

where is:

Z – probability factor

T_c – target duration of the project, i.e., the deadline for the project's execution

T_{CP} – estimated shortest duration of the project

σ – standard deviation of the critical path

After calculating the probability factor, it is possible to determine the probabilities of the critical path using the normal distribution table from which the "p" values are read.

4. Case study

4.1. Building characteristics

The research conducted for this manuscript also included an analysis of a case. The case in focus has been a public building designed to be a regional kindergarten in Eastern Croatia as a stand-alone building with associated infrastructure on a parcel of green, undeveloped land. The analysis was carried out during the project's planning phase, while its execution and delivery are planned for winter 2022 and spring 2023. The authors find this part of the research especially important due to the volume of public investments in different construction projects and insufficient scientific studies of such projects (Petroutsatou, 2019).

The building is designed (Šaponja, 2022) as one story and is intended for one nursery school group (14 children) and two kindergarten groups (40 children). The particle's surface area is 4175.63 m², while the maximum floor plan dimensions of the building are 40.60 meters by 19.25 meters, and the height of the building to the ridge is 5.19 meters.

The necessary horizontal and vertical reinforced concrete (RC) cerclages, RC beams, and RC columns will be installed on the building. The ceiling will be constructed as an RC slab. The roof will be a gable with a 7° slope, covered with sheet metal. The trapezoidal sheet rests on monolithic secondary supports of the roof (dimensions according to the static calculation), which are supported on the RC plate. The facade walls will be made of blocks, and RC walls will be covered with thermal insulation on the outside with all the necessary layers and a final layer of light plaster. The vertical gutters and the covering sheet of the roof cornice will be made of a painted galvanized sheet. The glazed parts of the facade, doors, and windows are made of PVC profiles with a broken thermal bridge; they will be glazed with IZO glass (4 + 12 + 4 mm) with insulation protection provided by blinds.

4.2. More probable project execution duration

After determining the critical activities, it is necessary to calculate the variances for both the CPM and PERT schedules. After the variance has been calculated for all activities, it is necessary to calculate the variance of the critical path for both schedules using the expression (7). The variance for the critical path of the most likely construction execution duration is 34.1944, and the variance for the critical path of the expected construction execution duration is 32.7500.

The standard deviation, which is calculated according to expression (8) for the most likely execution duration, is 5.8476, while the expected construction duration is 5.7228. The more likely project execution duration is determined according to the probability factor, that is, the "Z" value, and to determine the "Z" value, it is necessary to figure out the target duration of the project, that is, the deadline for project execution. The target duration of the project, i.e., the deadline for the execution of the project, is 575 days. The most likely project execution duration is 546 days, determined using the CPM method, while the expected project execution duration is 568.50 days, determined using the PERT method. Such duration results are consistent with findings from similar construction project studies (Kholil et al. 2018; Andiyan, 2021), which also identified the longer duration of the project using the PERT method.

Determining the "Z" probability factor for the most likely project execution duration according to expression (9):

$$T_c = 575 \text{ days}$$

$$T_{KP} = 546 \text{ days}$$

$$\sigma = 5,8476$$

$$Z = \frac{575 - 546}{5,8476} = 4,9593$$

Determining the "Z" probability factor for the expected project execution duration:

$$T_c = 575 \text{ days}$$

$$T_{KP} = 568,50 \text{ days}$$

$$\sigma = 5,7228$$

$$Z = \frac{575 - 568,50}{5,7228} = 1,1358$$

Using the normal distribution table, the "p" values are read, and the probabilities of the critical path are obtained from them. The probability of the critical path for the most likely duration of the project is over 0.9998, or over 99.98% for the CPM method, and the probability of the critical path for the project's expected duration is 0.8729, or 87.29% for the PERT method. Therefore, the critical path for the most likely duration of the project is more likely, and it becomes authoritative for further calculation.

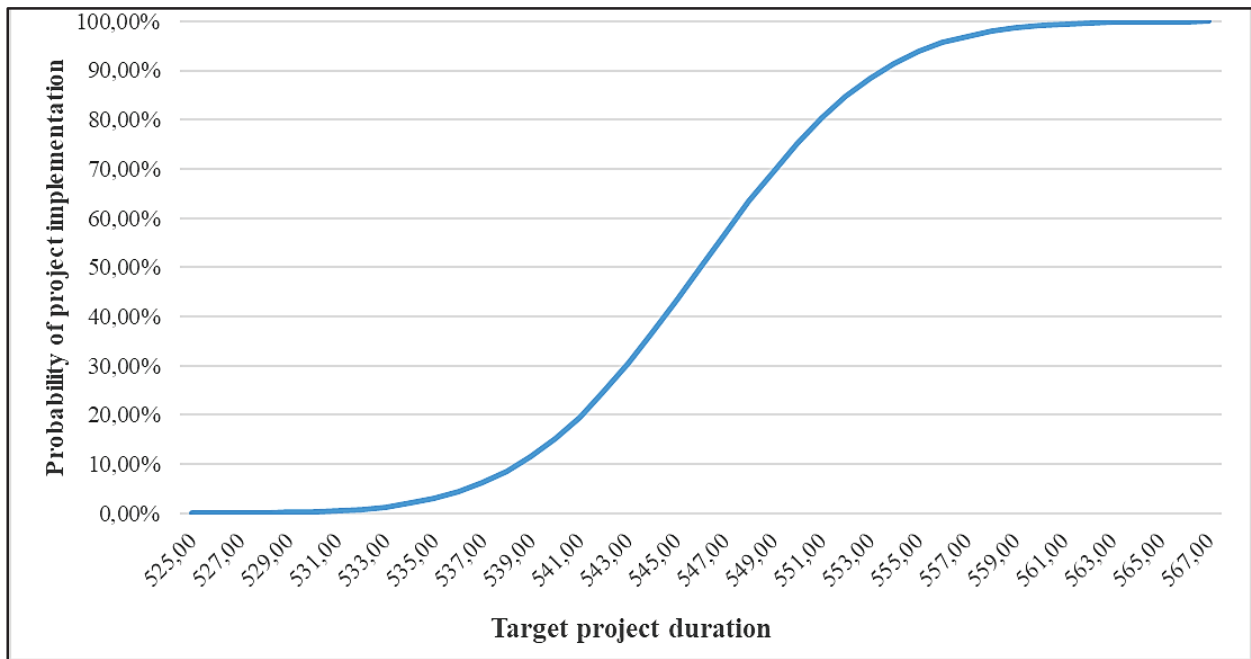
The CPM method usually aims to achieve near 100% completion probability, while using the PERT method, it is possible to vary the probabilities of completion, which results in obtaining various project durations. However, there is evidence (Orumie Ukamaka, 2020) that aiming near 100% completion probability with both methods results in almost the same project duration.

4.3. Critical path analysis

Since the critical path is more likely for the most likely project duration, a critical path analysis has been done for that variant. A delay in the performance of any critical activity in the project results in an extension of the project's duration. In contrast, an acceleration of the performance of critical activity in the project results in earlier project completion.

The studied case is a medium-sized project which consists of 195 activities. Most of those activities have been identified as critical, meaning only a narrow range of activities are available for time manipulation. For example, critical activities have been geodetic works, earthworks, connection to the public water supply and sewage network, carpentry, reinforcement, insulating, masonry, joinery, tinsmith, ceramics, installation, and furnishing works. The remaining non-critical activities by which the total duration of this project could have been improved are part of concrete works, scaffolding, project commissioning, and parking lot works. It can be concluded that there are, in fact, no activities that are not important – even those which might not have been decisively relevant or critical, enabling project managers to increase efficiency. It is, therefore, crucial to identify both categories.

Suppose the target duration of the project, i.e., the deadline for the execution, is equal to the calculated duration of the earliest completion. In that case, the probability of the project's completion is 50%. To increase the probability of project completion, increasing the number of days in the target project duration is necessary. In the same way, to reduce the probability of project completion, it is necessary to reduce the number of days in the target project duration.

Figure 1: Probability of project performance according to the target project duration

Source: Authors

According to the calculated probabilities of project completion presented in Figure 1, it can be concluded that if the target duration of the project increases by 21 working days, the probability of project completion will reach 100%; on the contrary, if the target duration of the project decreases by 21 working days, the probability of project completion will decrease to 0%. The interval of target project duration ranges from 525 days to 567 days.

The authors find these results to substantiate the beneficial use of CPM and PERT methods for informed decision-making and better construction project management since the project duration obtained using both methods is shorter than the target project duration. Such improved project planning is possible since these methods have pinpointed the critical activities that can be altered in terms of their duration and costs. This does not necessarily mean decreasing both variables but simply enabling the project manager to consciously decide whether it is necessary, for example, to allow higher costs for certain activities if time has become a critical factor.

5. Conclusion

With project-oriented organizations becoming more common and project-based management becoming the new general management, detailed project planning has unquestionably become the critical skill required by all managers. Due to the complexity and significance of project planning, many methods have been developed. These methods can be variously formulated, ranging from numerical to graphical, but all with the aim of providing possibilities for leveling resources. This paper has focused on two network planning methods, CPM and PERT since they are widely and commonly used in construction and general project planning practice.

This research proved that using both CPM and PERT methods facilitates project management by providing managers with different perspectives on optimum and near-optimum alternatives, allowing them to choose the better option in the current context. Additionally, insight into the duration and costs of activities and the possibilities of their acceleration and change facilitates more informed decision-making. Identifying critical activities is essential because they have no time reserve, so they should be started and finished exactly as planned. At the same time, recognizing other non-critical activities enables project managers to manipulate their time and cost, resulting in total project improvement.

Although the research identified specific differences in terms of the time estimates between the CPM and PERT method, results confirmed that the significant similarity of these planning methods is their appropriateness and complementarity in the construction project execution. The results presented in this paper contribute to future scholarly studies and stakeholders in the construction industry by suggesting a way of achieving a more efficient planning process and thus improving the performance of construction projects.

Perhaps the shortcoming of this paper is the analysis of a single case. Authors have tried to compensate for this drawback with an extensive literature review. As further research direction, analysis of additional projects would be useful. It might be beneficial to study the planning of public construction projects as they are more cost-sensitive than private investments. Namely, the state-of-the-art analysis has shown that the literature on planning public construction projects needs to be more extensive and abundant. Therefore, such an emphasis would be necessary since any suggestion of potential savings, either in terms of time or money, might be valuable.

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A scientific paper

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EXPLORING THE VARK MODEL: A REVIEW OF THE VALIDITY AND RELIABILITY OF THE QUESTIONNAIRE AND ITS RELATIONSHIP TO LEARNING OUTCOMES

ABSTRACT

The VARK model suggests that individuals have unique preferences for learning, which can be assessed through the VARK questionnaire. A recent review of 40 articles about the VARK model investigated the validity and reliability of the questionnaire, as well as the relationship between learning style preference and various outcomes. The review found that the VARK questionnaire is generally considered a valid and reliable tool for assessing an individual's learning style preference, in many fields, especially in medicine, kinesiology and economics. Furthermore, an individual's learning style preference, as measured by the VARK questionnaire, may be related to their academic performance or other outcomes. However, this relationship is complex and influenced by various factors. Therefore, it is important to recognize that there is no unique approach to teaching, and different individuals may benefit from different teaching methods. The review also discovered that an individual's learning style preference may vary based on demographic factors such as age, gender, and cultural background. However, the relationship between learning style preference and these factors is intricate and influenced by other variables. Therefore, understanding an individual's learning style preference can be useful in designing educational materials and programs tailored to their needs and preferences. The review found that individuals with different learning style preferences engage with learning materials or activities differently. This finding suggests that understanding an individual's learning style preference can be helpful in designing educational materials and programs that cater to their specific needs and preferences. Finally, the review suggests that the VARK questionnaire is a valid and reliable tool for assessing an individual's learning style preference. However, the relationship between learning style preference and various factors is complex and influenced by various other factors, making it crucial to consider individual differences and needs when designing educational materials and programs.

Key words: learning models, learning styles, VARK questionnaire, economy, kinesiology.

1. Introduction

The VARK Questionnaire is a tool designed to assess an individual's learning style preference. It is based on the VARK model of learning styles, which proposes that there are four primary ways in which people prefer to learn new information: visual, auditory, reading/writing, and kinesthetic.

The VARK model and questionnaire were developed by Neil Fleming, a New Zealand education professor, in the 1990s. The model has gained widespread acceptance and has been widely used in education and training settings.

The VARK Questionnaire consists of 16 multiple-choice questions that ask about an individual's preferred learning methods and strategies. The questionnaire takes about 5-10 minutes to complete and provides a score for each of the four learning styles, as well as a summary of the individual's overall preference.

The visual learning style refers to a preference for learning through the use of visual aids, such as diagrams, charts, and videos. The auditory learning style refers to a preference for learning through the use of sound, such as lectures or discussions. The reading/writing learning style refers to a preference for learning through the use of written materials, such as texts or notes. The kinesthetic learning style refers to a preference for learning through physical experiences, such as hands-on activities or simulations, which is especially applicable in the field of kinesiology.

There are several ways in which the VARK Questionnaire and model of learning styles can be used. For example, educators can use the results of the questionnaire to tailor their teaching methods to better meet the needs of their students. Individuals can use the results of the questionnaire to identify their preferred learning style and develop strategies for more effectively learning new information.

Research has generally supported the validity of the VARK model and questionnaire, although some studies have questioned the model's overall explanatory power and the questionnaire's reliability (Fleming & Mills, 1992; Honey & Mumford, 1992; Reid, 1995). Despite these limitations, the VARK model and questionnaire remain popular and widely used tools for assessing learning style preference.

2. Methodology and research issues

In this chapter, the methodology will be presented, which is an overview of previous research. The relevant answers to the 5 research questions will be presented in the table. For each individual paper, we will be interested in whether that paper answers a particular research question and what the answer is - whether it has a positive or negative effect.

2.1. VARK model

VARA is a learning preference assessment tool designed to help individuals identify their preferred learning style, based on the following four categories (Fleming, 1995):

1. Visual: These learners prefer to learn through visual aids such as diagrams, charts, and videos.
2. Auditory: These learners prefer to learn through hearing lectures, discussions, and audio recordings.
3. Reading/Writing: These learners prefer to learn through reading and writing, such as through texts, notes, and written explanations.

4. Kinesthetic: These learners prefer to learn through hands-on experiences and kinesiological activities.

While the VARK assessment has been widely used, there is some debate about its validity and reliability as a tool for identifying learning preferences. Some research suggests that the VARK categories may not adequately capture the complexity of individual learning preferences, and that individuals may have multiple preferred learning styles rather than just one. (Pushler et al., 2009)

"I'm different; not dumb. Modes of presentation (VARK) in the tertiary classroom" is an article by (Fleming, 1995) discusses the use of the VARK assessment tool in higher education settings. In the article, Fleming argues that using a variety of teaching methods and presentation styles can help to accommodate the diverse learning preferences of students in tertiary (college or university) classrooms. He suggests that educators can use the VARK assessment to identify the preferred learning styles of their students and then incorporate a range of teaching methods and materials that align with those preferences. Fleming also discusses the potential limitations of the VARK assessment, including the fact that it may not adequately capture the complexity of individual learning preferences and that individuals may have multiple preferred learning styles. He recommends that educators use the VARK assessment as a starting point for understanding student learning preferences, rather than relying on it as the sole determinant of teaching strategies.

2.2. Research methodology

The purpose of studying previous research is to find works that answer the key questions of this research. The research was conducted during December 2022 in the Web of Science and Google Scholar databases. The study was guided by the following query: ("VARK model" AND (reliability OR validity)). In this study, we followed the recommendations on using a multi-phase process for the SLR (Moher et al., 2009; Mangaroska & Giannakos, 2019). The SLR was conducted in three phases: paper selection, abstract review, and full paper review. In the first phase, 131 unique publications were reviewed and papers were evaluated based on criteria such as relevance to VARK model, focus on education. This led to the selection of 67 papers for further analysis. In the third phase, the complete papers were thoroughly reviewed and aspects such as the type of research, key findings, limitations and recommendations for future research were analyzed. Based on the evaluations and the most significant findings, all verified papers were critically reviewed and 40 relevant publications were selected for further analysis. (Table 1). Publications with the lowest relevance score or poor methodology were excluded.

Here are research questions that are explored in a review of articles about the VARK model:

Q1. How valid and reliable is the VARK questionnaire as a measure of learning style preference?

Q2. How does an individual's learning style preference as assessed by the VARK questionnaire relate to their academic performance or other outcomes?

Q3. Do different teaching methods or approaches effectively meet the needs of individuals with different

learning style preferences, as assessed by the VARK questionnaire?

Q4. How does an individual's learning style preference as assessed by the VARK questionnaire vary by age, gender, cultural background, or other demographic factors?

Q5. How do individuals with different learning style preferences approach and engage with learning

materials or activities, and how can this inform the design of educational materials or programs?

The methodology for this study will involve a review of the existing literature on the VARK model, including the validity and reliability of the questionnaire and its relationship to learning outcomes. This will include a search of academic database Google Scholar for relevant studies, as well as a manual search of the reference lists of identified studies to locate additional relevant literature.

In order to address research question 1, a review of the literature on the validity and reliability of the VARK questionnaire will be conducted. This will involve identifying studies that have assessed the validity and reliability of the questionnaire through various methods, such as test-retest reliability, internal consistency, and construct validity.

To address research question 2, a review of the literature on the relationship between learning style preference as assessed by the VARK questionnaire and academic performance or other outcomes will be conducted. This will involve identifying studies that have examined this relationship, and synthesizing the findings from these studies to determine the overall strength of the association.

To address research question 3, a review of the literature on the effectiveness of different teaching methods or approaches in meeting the needs of individuals with different learning style preferences will be conducted. This will involve identifying studies that have examined this relationship, and synthesizing the findings from these studies to determine the overall effectiveness of different teaching approaches in meeting the needs of individuals with different learning style preferences.

To address research question 4, a review of the literature on the relationship between learning style preference and demographic factors such as age, gender, and cultural background will be conducted. This will involve identifying studies that have examined this relationship, and synthesizing the findings from these studies to determine whether learning style preference varies by these demographic factors.

To address research question 5, a review of the literature on how individuals with different learning style preferences approach and engage with learning materials or activities will be conducted. This will involve identifying studies that have examined this relationship, and synthesizing the findings from these studies to inform the design of educational materials or programs for individuals with different learning style preferences.

Overall, this study will utilize a systematic review approach to synthesize the existing literature on the VARK model, with a focus on the validity and reliability of the questionnaire, its relationship to learning outcomes, and its relationship to demographic factors and learning materials or activities. This will provide a comprehensive overview of the current state of knowledge on the VARK model, and will inform future research and practice in the field.

Table 1: Analysis of previous research: a review

No	Study	Q1	Q2	Q3	Q4	Q5
1	Urval et al. (2014)	+	+		+	
2	Fitkov-Norris (2012)	+				

No	Study	Q1	Q2	Q3	Q4	Q5
3	Prithishkumar (2013)	+	+			+
4	Aldosari et al. (2017)	+	+			
5	Fleming & Baume (2006)		+		+	
6	Peyman et al. (2017)	+	+		+	
7	Wehrwein et al. (2006)	+	+	+	+	+
8	Shenoy et al. (2013)		+	+	-	
9	Braakhuis et al. (2015)				+	
10	Bhagat et al. (2011)		+			
11	Sinha et al. (2009)				-	
12	Zhu et al. (2013)				-	
13	Ramirez (2011)		+			
14	Brown et al. (2007)					
15	Whillier et al.			+		
16	Leite et al. (2011)	+				
17	Espinoza-Poves et al. (2018)				+	
18	Wright & Stokes (2009)	+	+			
19	Leung et al. (2012)					
20	Khongpit et al. (2013)		+		-	
21	Awang et al. (2014)		+			
22	Mirza & Khurshid (2016)		+			
23	Amaniyani et al. (2017)		+			
24	Klement (2013)				+	
25	Moayyeri (2012)		+			

No	Study	Q1	Q2	Q3	Q4	Q5
26	Hussain (2017)	+				
27	Alkhasawneh et al. (2017)	+	+	+		
28	James et al. (2017)	+	+			+
29	Lee (2017)		+	+		+
30	Daoruang et al. (2018)	+		+		
31	Sitia et al. (2018)	+	+	+		
32	Schulze & Bosman (2018)	+		+		
33	Boatman et al. (2019)	+	+	+		
34	Payaprom & Payaprom (2019)	+	+	+		+
35	Leasa et al. (2019)	+	+	+		
36	Toktarova & Panturov (2019)			+		+
37	Alqunayeer & Zamir (2020)	+	+	+		+
38	Wu (2004)	+		+		+
39	Seyal et al. (2018)			+		+
40	Kostolanyova & Simonova (2020)	+	+			+

Source: Authors

2.3. Review of research about VARK Questionnaire

Prithishkumar (2013) wrote an article discussing the use of the VARK model of learning styles to understand student preferences and tailor teaching methods accordingly. The article discusses the potential benefits of using the VARK model and questionnaire to assess student learning style preferences, including the ability to design more effective teaching strategies and to improve student learning outcomes. The article also provides examples of how the VARK model can be applied in different teaching settings, including in the classroom, online, and in clinical settings. Overall, the article emphasizes the importance of considering individual student learning preferences when designing educational interventions and suggests that the VARK model and questionnaire can be a useful tool for this purpose.

Aldosari et al. (2017) conducted a study to assess the learning style preferences of dental students at a single institution in Riyadh, Saudi Arabia, using the VARK questionnaire. The study included a sample of 103 dental students. The results of the study showed that the

majority of students had a mixed learning style preference, with visual and reading/writing preferences being the most common. The study also found that there was a significant relationship between learning style preference and academic performance, with students who had a preference for the visual style achieving higher grades on exams. In conclusion, the study found that the VARK questionnaire can be a useful tool for identifying learning style preference among dental students and that understanding these preferences may be helpful in designing educational interventions to improve student learning. According to Wehrwein et al. (2006) the VARK questionnaire can be used to determine student learning style preferences. This can be beneficial for both students and educators in identifying the preferred method of information presentation for individual students. There are differences in learning style preferences between males and females. It is important for instructors and students to be aware of these preferences in order to improve the learning process. As instructors, it is necessary to assess and understand how to present information in various modes in order to effectively reach all students.

According to Braakhuis et al. (2015), further research is required for a more comprehensive understanding of the interaction between athletes and health professionals but it is evident from their investigation that a trend exists between gender and athletic status and VARK learning style preferences. Therefore, these findings merit real life implementation. The findings from investigation present the exciting opportunity for a paradigm shift in the way that athletes interact and communicate with health care professionals.

According to Bhagat et al. (2011), the awareness of learning styles and perceptions of a mixed-method approach for learning among students were studied. A mixed-method approach for learning refers to the use of multiple teaching methods, such as visual, auditory, and kinesthetic modalities, in order to accommodate different learning styles. The authors conducted a survey to assess the awareness of learning styles and perceptions of a mixed-method approach for learning among undergraduate students in India. The results of the study showed that the majority of students were aware of learning styles and had a positive perception of a mixed-method approach for learning.

According to Ramirez (2011), the sensory modality used for learning, or the way information is presented, can affect grades. Sensory modalities refer to the ways in which individuals process and interpret information, such as through visual, auditory, or kinesthetic channels. Ramirez's study aimed to investigate the relationship between sensory modality and grades in a sample of undergraduate students. The results of the study showed that students who preferred visual and auditory modalities had significantly higher grades than students who preferred the kinesthetic modality.

According to Espinoza-Poves et al. (2018) study examined the distribution of learning styles among business school students at a university in Peru. The study found that the majority of business school students at the university had a multimodal learning style, meaning they preferred to use a combination of two or more of the VARK modalities when learning. The visual modality was the most preferred, followed by the auditory modality. The reading/writing modality was the least preferred, with the kinesthetic modality being the second least preferred. The study also found that there were significant differences in the distribution of learning styles among students in different academic programs and year levels. For example, students in the accounting program were more likely to prefer the visual modality, while students in the marketing program were more likely to prefer the auditory modality. Overall, the study suggests that the distribution of learning styles among business school students at the university was diverse and that there were differences in the distribution of learning styles among students in different academic programs and year levels.

A study by Leung et al. (2012) examined the relationship between student learning styles, as assessed using the VARK learning styles inventory, and performance in principles of micro-

and macro-economic courses at a university in Canada. The researchers found that students who preferred the visual modality had significantly higher grades in both micro- and macro-economic courses compared to students who preferred other modalities. They also found that students who preferred the auditory modality had significantly higher grades in the macro-economic course compared to students who preferred other modalities. Overall, the results of the study suggest that student learning styles, as assessed using the VARK learning styles inventory, may be related to performance in principles of micro- and macro-economic courses. The authors caution, however, that other factors such as student motivation, study habits, and prior knowledge may also contribute to student performance in these courses.

Khongpit et al. (2013) conducted a study on the learning styles of university students enrolled in a computer course at a university in Thailand. The study found that the majority of the students had a multimodal learning style, meaning they preferred to use a combination of two or more of the VARK modalities when learning. The visual modality was the most preferred, followed by the auditory modality. The reading/writing modality was the least preferred, with the kinesthetic modality being the second least preferred. The researchers also found that there were no significant differences in the distribution of learning styles among students in different year levels or academic programs. However, they did find that students who preferred the visual modality had significantly higher grades than students who preferred other modalities. Overall, the results of the study suggest that the distribution of learning styles among university students enrolled in a computer course was diverse, with the visual modality being the most preferred. The study also suggests that student learning styles, as assessed using the VARK learning styles inventory, may be related to academic performance in a computer course. According to Whillier et al. (2014) it is important for educators to consider the learning styles of their students in order to effectively communicate information and facilitate learning. Different teaching methods and materials may be more or less effective for different learning styles. Understanding the preferred learning styles of students can also help educators tailor their teaching approaches to better meet the needs of individual students and the class as a whole.

Awang et al. (2014) conducted a study on the relationship between student learning styles, as assessed using the VARK learning styles inventory, and academic achievement at a university in Malaysia. The study found that the majority of the students had a multimodal learning style, meaning they preferred to use a combination of two or more of the VARK modalities when learning. The visual modality was the most preferred, followed by the auditory modality. The reading/writing modality was the least preferred, with the kinesthetic modality being the second least preferred. The researchers also found that there was a significant positive relationship between student learning styles and academic achievement. Specifically, students who preferred the visual modality had significantly higher grades than students who preferred other modalities. Overall, the results of the study suggest that student learning styles, as assessed using the VARK learning styles inventory, may be related to academic achievement at a university in Malaysia. The authors recommend that educators consider student learning styles when designing instructional materials and activities.

According to Klement (2013) study examined the learning styles of students enrolled in educational disciplines at a university in the Czech Republic. The study found that the majority of the students had a multimodal learning style, meaning they preferred to use a combination of two or more of the VARK modalities when learning. The visual modality was the most preferred, followed by the auditory modality. The reading/writing modality was the least preferred, with the kinesthetic modality being the second least preferred. The study also found that there were significant differences in the distribution of learning styles among students in different academic programs and year levels. For example, students in the psychology program were more likely to prefer the auditory modality, while students in the pedagogy program were more likely to prefer the visual modality. Overall, the results of the

study suggest that the distribution of learning styles among students enrolled in educational disciplines at the university was diverse and that there were differences in the distribution of learning styles among students in different academic programs and year levels. According to Hussain (2017) the author discusses the pedagogical implications of the VARK model. These implications include the idea that teachers can use a variety of teaching methods and materials to accommodate different learning styles, and that students can use their knowledge of their own learning style to select learning activities and materials that are most effective for them. Overall, the VARK model provides a framework for understanding individual differences in learning preferences and can be used to inform teaching and learning practices in order to optimize learning outcomes.

According to Alkhasawneh et al. (2017) problem-based learning (PBL) is a teaching approach that is based on the idea of using real-world problems as the starting point for learning. In PBL, students work in small groups to identify and solve problems, with the guidance of a facilitator. The authors of this article used the VARK model to assess the learning preferences of students participating in a PBL program. They found that the majority of students had a preference for the visual and reading/writing learning styles, and that there was a positive correlation between the use of PBL and increased student performance. Based on their findings, the authors suggest that the VARK model can be used to inform teaching practices in a PBL setting, and that incorporating a variety of teaching methods and materials that align with different learning styles may be beneficial for optimizing student learning outcomes. According to Sintia et al. (2018), the authors discuss the use of the VARK model of learning and cooperative learning in teaching physics concepts related to impulse and momentum. The authors of this article conducted a study in which they used the VARK model to assess the learning preferences of students and compared the effectiveness of cooperative learning and traditional teaching methods for teaching impulse and momentum. They found that the use of cooperative learning resulted in higher student achievement and that there was a positive correlation between the use of cooperative learning and increased student engagement. Based on these findings, the authors suggest that the use of cooperative learning in combination with teaching strategies that align with students' identified learning styles according to the VARK model may be an effective approach to teaching physics concepts related to impulse and momentum.

In the article conducted by Schulze & Bosman (2018), the authors discuss the relationship between learning style preferences and mathematics achievement in secondary school students. They used the VARK model of learning, which is a tool for identifying an individual's preferred learning style and ways of processing information, to assess the learning styles of the students in their study. The authors of this article found that students with a preference for the visual learning style had the highest mathematics achievement, followed by students with a preference for the auditory style. They also found that students with a preference for the reading/writing style had the lowest mathematics achievement. Based on these findings, the authors suggest that the VARK model may be useful for identifying the learning preferences of secondary school students and for informing teaching practices in order to optimize student learning outcomes in mathematics. According to Leasa et al. (2019), study discuss the relationship between learning style preferences and critical thinking skills in natural science learning among elementary school students. The authors of this article found that there was a positive correlation between the learning style preferences of students and their critical thinking skills in natural science learning. They also found that students with a preference for the visual learning style had the highest critical thinking skills, followed by students with a preference for the auditory style. Based on these findings, the authors suggest

that the VARK model may be useful for identifying the learning preferences of elementary school students and for informing teaching practices in order to optimize student learning outcomes in natural science. Wu (2004) discusses the relationship between learning style preferences and student satisfaction in distance education. The author of this article found that students with a preference for the visual learning style had the highest satisfaction with distance education, followed by students with a preference for the auditory style. He also found that students with a preference for the reading/writing style had the lowest satisfaction with distance education. Based on these findings, the author suggests that the VARK model may be useful for identifying the learning preferences of students in distance education and for informing teaching practices in order to optimize student satisfaction with this mode of learning.

3. Results

The VARK model is a theory of learning styles that proposes that individuals have preferences for different ways of receiving and processing information. The VARK questionnaire is a tool used to assess an individual's learning style preference based on their responses to a series of questions. The VARK model and questionnaire have been the subject of numerous studies, and a review of these studies can provide insight into the validity and reliability of the VARK questionnaire as a measure of learning style preference, as well as the relationship between an individual's learning style preference and various outcomes such as academic performance, the effectiveness of different teaching methods, and how individuals with different learning style preferences approach and engage with learning materials or activities.

According to a review of 40 articles about the VARK model, 20 articles had positive findings about the validity and reliability of the VARK questionnaire as a measure of learning style preference. This suggests that the VARK questionnaire is generally seen as a reliable and valid tool for assessing an individual's learning style preference.

The review also found that 24 articles had positive findings about the relationship between an individual's learning style preference and their academic performance or other outcomes. This indicates that an individual's learning style preference, as assessed by the VARK questionnaire, may be related to their academic performance or other outcomes in some way. However, it is important to note that the relationship between learning style preference and academic performance is complex and may be influenced by a variety of factors.

In terms of the effectiveness of different teaching methods for individuals with different learning style preferences, the review found that 15 articles had positive findings. This suggests that teaching methods that are tailored to an individual's learning style preference may be more effective for that individual. However, it is important to note that there is no unique approach to teaching and that different individuals may benefit from different teaching methods.

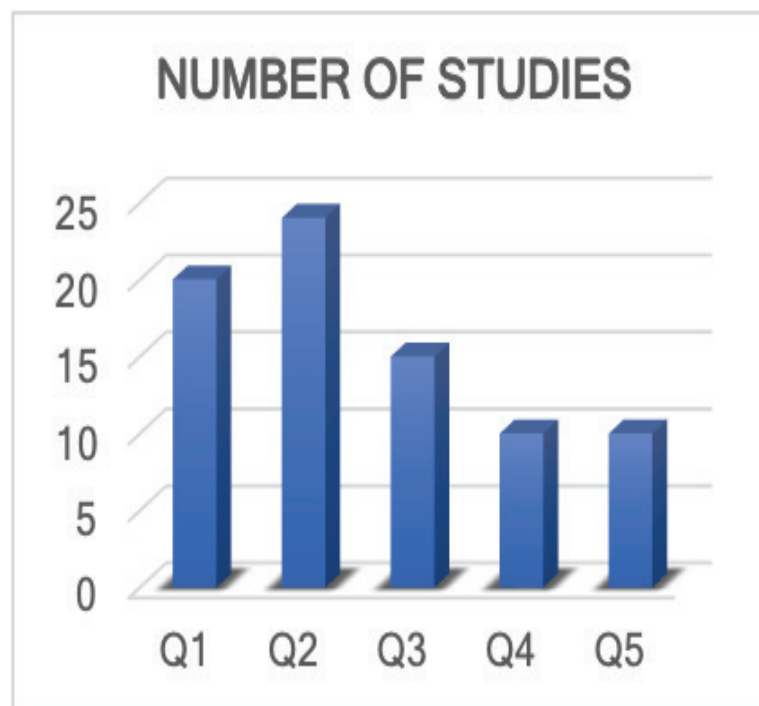
The review also found that 6 articles had positive findings about the relationship between an individual's learning style preference and demographic factors such as age, gender, and cultural background. This suggests that an individual's learning style preference may vary based on these factors. However, again, it is important to note that the relationship between learning style preference and demographic factors is complex and may be influenced by a variety of factors.

Finally, the review found that 10 articles had positive findings about how individuals with different learning style preferences approach and engage with learning materials or activities, and how this can inform the design of educational materials or programs. This suggests that

understanding an individual's learning style preference can be useful in designing educational materials and programs that are tailored to their needs and preferences.

Overall, the findings of the review suggest that the VARK questionnaire is a valid and reliable tool for assessing an individual's learning style preference and that an individual's learning style preference may be related to various outcomes such as academic performance and the effectiveness of different teaching methods. It may also vary based on demographic factors such as age, gender, and cultural background, and understanding an individual's learning style preference can inform the design of educational materials and programs. However, it is important to note that the relationship between learning style preference and these various factors is complex and may be influenced by a variety of other factors. (Figure 1)

Figure 1: Number of studies addressing research questions in the review



Source: Authors

4. Conclusion

The VARK questionnaire is a widely used tool for assessing an individual's learning style preference based on their responses to a series of questions. To better understand the validity and reliability of the VARK questionnaire, as well as the relationship between an individual's learning style preference and various outcomes, a review of 40 articles about the VARK model was conducted.

The review found that 20 articles had positive findings about the validity and reliability of the VARK questionnaire as a measure of learning style preference. This suggests that the VARK questionnaire is generally seen as a reliable and valid tool for assessing an individual's learning style preference. Additionally, 24 articles had positive findings about the relationship between an individual's learning style preference and their academic performance or other outcomes. This indicates that an individual's learning style preference, as assessed by the VARK questionnaire, may be related to their academic performance or other outcomes in

some way. However, it is important to note that the relationship between learning style preference and academic performance is complex and may be influenced by a variety of factors.

The review also found that 15 articles had positive findings about the effectiveness of different teaching methods for individuals with different learning style preferences. This suggests that teaching methods that are tailored to an individual's learning style preference may be more effective for that individual. However, it is important to recognize that there is no one-size-fits-all approach to teaching, and different individuals may benefit from different teaching methods.

The review also found that 6 articles had positive findings about the relationship between an individual's learning style preference and demographic factors such as age, gender, and cultural background. This suggests that an individual's learning style preference may vary based on these factors. However, it is important to note that the relationship between learning style preference and demographic factors is complex and may be influenced by a variety of factors.

Finally, the review found that 10 articles had positive findings about how individuals with different learning style preferences approach and engage with learning materials or activities, and how this can inform the design of educational materials or programs. This suggests that understanding an individual's learning style preference can be useful in designing educational materials and programs that are tailored to their needs and preferences.

In conclusion, the findings of the review suggest that the VARK questionnaire is a valid and reliable tool for assessing an individual's learning style preference and that an individual's learning style preference may be related to various outcomes such as academic performance and the effectiveness of different teaching methods in many fields, especially in medicine, kinesiology and economics. It may also vary based on demographic factors such as age, gender, and cultural background, and understanding an individual's learning style preference can inform the design of educational materials and programs. However, it is important to note that the relationship between learning style preference and these various factors is complex and may be influenced by a variety of other factors.

The review was limited to studies that were published in English, which may have resulted in the exclusion of relevant studies that were published in other languages. Additionally, the review was based on a limited number of studies, and the overall quality of the studies varied. Some studies had strong research designs and methods, while others had limitations such as small sample sizes or lack of control groups. These factors may have influenced the overall findings of the review.

Another limitation to consider is that the VARK model is just one theory of learning styles, and there may be other factors that contribute to an individual's preferences for learning. It is important to recognize that learning style preferences are just one aspect of an individual's approach to learning, and that other factors such as motivation, goals, and interests may also play a role in how individuals engage with learning materials and activities.

Finally, it is important to note that the findings of the review should not be used to make blanket statements about the utility of the VARK model or the effectiveness of different teaching methods. The relationship between learning style preference and various outcomes is complex and may be influenced by a variety of factors, and it is important to consider the specific context and characteristics of the learners when applying the findings of the review.

In terms of further research, there are several areas that could be explored to build on the findings of the review. One potential area of focus could be to conduct more rigorous, large-scale studies to examine the validity and reliability of the VARK questionnaire and its relationship to various outcomes. This could include studies that use more advanced statistical methods to control for potential confounds, as well as studies that use larger and more diverse

sample sizes. Another potential area of focus could be to explore the relationship between learning style preference and other factors that may influence learning, such as motivation, goals, and interests. Finally, it could be useful to examine the relationship between learning style preference and other variables, such as teaching methods, content, and context, in order to better understand how these factors may interact to impact learning outcomes.

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A scientific paper

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THE EFFECT OF MATERIAL COMPENSATION ON EMPLOYEE SATISFACTION

ABSTRACT

One of the prerequisites for a successful business is a satisfied employee. In order for a worker to be satisfied, one must be satisfied with the working conditions. Such conditions reflect through a system of material and non-material rewards. The spectrum of possibilities regarding material and non-material rewards is very diverse, and the human resources manager has the task of finding out what motivates his employees and encouraging them to work more efficiently. In other words, striving for the material compensation system to be stimulating, it must include direct and indirect compensation groups. The topic of this paper is material compensation in correlation with a satisfied employee. The research problem is to determine how employees rank material compensation when it comes to workplace satisfaction. The authors conducted the empirical research in the company Končar - distribution and special transformers d.d. Zagreb. The aim of the research is to diagnose what motivates employees to work, what demotivates them and what is their point of view regarding material compensation. In order to find out the above, the research had to determine certain characteristics of the employees such as gender, age, level of education, category of position in the company, years of total service, duration of employment in the company Končar D&ST, employment status, level of income, evaluate general satisfaction in the company and motivation to perform work tasks. The second part of the survey contained statements that respondents had to rank in order of importance using a Likert scale, which related to the amount of salary, regularity of salary, receiving bonuses and awards, respect for workers' rights, the possibility of career development, relationship with superiors, colleagues, size of the company etc., while the third part was also constructed so that respondents, using a Likert scale, rank their agreement with certain statements that speak about working conditions, i.e. how workers perceive how clearly assigned tasks are, how accurately information transmitted within the organization, how much superiors value opinions workers, how many organizations strive for innovation and following trends in the environment, how problems are solved, how powers are delegated, etc. The results obtained from the research confirm the hypothesis which claims that material benefits are not the most important motivators that influence employee satisfaction. The respondents ranked good

collegial relations, respect for workers' rights, regular pay, and rewarding after a job well done as more important than the amount of salary. The research brings a very important conclusion when it comes to employee satisfaction, if the employee lacks satisfaction at the workplace due to a bad and demotivating work environment, as well as respect for superiors, a high salary is not a sufficient motivator for efficient work.

Key words: *motivation, material compensations, non-material compensations, employee satisfaction.*

1. Introduction

The most important resources possessed by a company are human resources, and as such considered responsible for the company's success. In recent business, special attention companies pay to employee satisfaction, so HR managers have a much more difficult job. A successful human resources manager is expected to find an appropriate way to motivate each employee so that he gives his best in the performance of the work task and is satisfied at the same time. A satisfied employee is important for a company from several points of view, not only will he do his job more successfully, but he will represent his company in a positive light. One of the most important segments of employee motivation is the material and non-material reward system. Both can be both stimulating and de-stimulating, depending on the capabilities of the HR manager who must implement them among employees. This paper presents a part of the research and the obtained results of the specialist final thesis entitled "The influence of material compensation on employee satisfaction", which was prepared and defended by student Aneta Vranić at the Faculty of Economics in Osijek in 2023 under the expert guidance of mentor prof. Ph.D. Željko Požega and co-mentor prof. Ph.D. Boris Crnković.

2. Theoretical framework

Robbins and Judge (2010) believe that managers should be interested in the attitudes of their employees because attitudes warn of possible problems and because they influence behavior. Tafra et al. (2017) believe that effective human resources management is one of the key success factors of any company. Employees who are satisfied and committed to the organization have lower rates of leaving the organization, absenteeism and engage in deviant behaviors less often. They also do their jobs better. Therefore, managers want to reduce the number of resignations and absenteeism, especially among more productive employees, so they should act to encourage positive attitudes toward work. One of the most important factors of a satisfied employee is the level of motivation for work.

There are many definitions of motivation. According to Beck (2003), motivation is a theoretical concept that explains why people (or animals) choose a certain way of behaving in certain circumstances. The motivational question is how to explain changes in choices among possible behaviors that an organism can perform. The basic motivational assumption is that organisms approach the goal or engage in some activities for which they expect more desirable outcomes, as well as that they avoid activities that they expect will lead to unpleasant or repulsive, or aversive, outcomes. Jakšić (2003), on the other hand, believes that motivation is the presentation of motives for action, the explanation of motives that encourage us to act. Buntak et al. (2013) interpret that employee motivation is not only a field of

psychological and sociological problems of work and work behavior, but behavior directed towards some goal that arouses the needs caused in man, and the goal is to satisfy needs. It is evident that motivation is a complex concept and it cannot be read from it what motivates someone, what demotivates someone, in what way motivation is increased, how it is maintained, that is why numerous theories of motivation have been developed, each explaining the answers to the above questions from its own aspect. Reeve (2010) explains that theories of motivation reveal what is common in the aspirations of all human beings, identifying what people of different cultures, different life experiences and different genetic inheritance have in common. Everyone has a small number of basic emotions in common and everyone feels emotions under the same conditions, such as the feeling of fear when we are threatened or upset after losing something or someone valuable to us. Bonačić (2018) claims that of all motivation theories, there are two main groups: content and process theories of motivation. Content theories of motivation are oriented towards determining the variables that influence behavior, emphasizing primarily people's needs as motivation for work, while process theories of motivation start from the fact that people's needs alone are not a sufficient factor in explaining work motivation.

One of the most important factors in motivating employees is the material and non-material reward system. Both systems can be stimulating and de-stimulating for workers, depending on their work performance. Salopek (2019) claims that material compensation depends on the organization's policy and practice, and is the basis for motivating workers. Salaries, awards and promotions serve as reward and performance evaluation mechanisms within the policy and practice of each organization. As for intangible strategies of motivation, Kontent (2019) states that these are, first of all, the needs for personal and professional development, the need to confirm expertise, abilities and a job well done, the need for appreciation from the work environment, the need for self-realization, the need for self-esteem and needs to reach a certain status. Buble (2011) emphasizes that material motivations aims primarily at meeting basic human needs, while non-material motivation strategies aims at meeting higher-order needs. Požega (2012) believes that the sole goal of material reward strategies, or different material rewards, is to improve the work performance of employees through increasing their motivation. Rewards can be different and can be divided according to the degree of excellence into direct (eg. salary) and indirect (eg. benefits), whereby it should be said that indirect usually have less influence on employee motivation. Awards can be individual, which the individual receives independently based on his work activities and/or at the level of motivation, or group awards, which the worker receives together with other colleagues if the desired business results are achieved at the level of the team, department or company.

It is not necessary to emphasize how important material compensations are to employees because they serve to satisfy, first of all, basic existential needs, and then also higher-level needs. Material incentives one can classify as direct material compensations and indirect material compensations. Direct ones represent concrete money that the employee receives, while indirect ones improve the employee's standard of living. More precisely, direct material compensations are: salaries, bonuses, fees for spreading knowledge, etc., while indirect material compensations are: scholarships and tuition fees, specializations, paid absences and days off, company car, etc. Bahtijarević-Šiber (1999) believes that regarding various basis of financial compensation and total income, the system must be transparent so that it is clearly visible on the basis of which part of the variable part is obtained. The starting point of the entire system is the basic salary, on which different incentives builds like legos - from those related to individual work performance as part of the normal salary to different incentives and

bonuses related to special contributions and programs and those related to collective and organizational performance.

Robbins and Judge (2010) argue that the most important thing managers can do to increase employee satisfaction is to focus on the intrinsic aspects of the job, say making the job challenging and interesting. Although low wages are unlikely to attract or retain high-quality employees in the organization, managers should realize that high wages alone are unlikely to create a satisfactory work environment. According to Vodopija (2006), in order for the employee to be as successful as possible, i.e. as efficient as possible in the performance of the work task, he should develop internal (personal) motivation. Internal motivation represents a set of positive feelings associated with a successfully completed job. Motivation comes from the psychological satisfaction we feel after a job well done that we like to do.

One can conclude that some of the most important activities of HR managers is to motivate their employees. A system of material and a system of non-material rewards are available, and the manager's task is to balance wishes, needs and possibilities.

3. Research methodology

The goal of the research was to find out how to encourage employees to work efficiently by combining material and non-material factors. In order to find out the above, the research had to determine certain characteristics of the employees such as gender, age, level of education, category of position in the company, years of total service, duration of employment in the company Končar D&ST, employment status, level of income, evaluate general satisfaction in the company and motivation to perform work tasks. The second part of the survey contained statements that respondents had to rank in order of importance using a Likert scale, which related to the amount of salary, regularity of salary, receiving bonuses and awards, respect for workers' rights, the possibility of career development, relationship with superiors, colleagues, size of the company etc., while the third part was also constructed so that respondents, using a Likert scale, rank their agreement with certain statements that speak about working conditions, i.e. how workers perceive how clearly assigned tasks are, how accurately information transmitted within the organization, how much superiors value opinions workers, how many organizations strive for innovation and following trends in the environment, how problems are solved, how powers are delegated, etc.

Following the above, the following hypothesis was put forward: "Salary and other material benefits are not, as a rule, the most important motivator that affects employee satisfaction". The hypothesis was set in order to determine which motivating strategies in employees cause the most satisfaction and encourage them to act effectively, i.e. the hypothesis aimed to find out which, in practice, are the driving motivators that cause a feeling of satisfaction in the workplace.

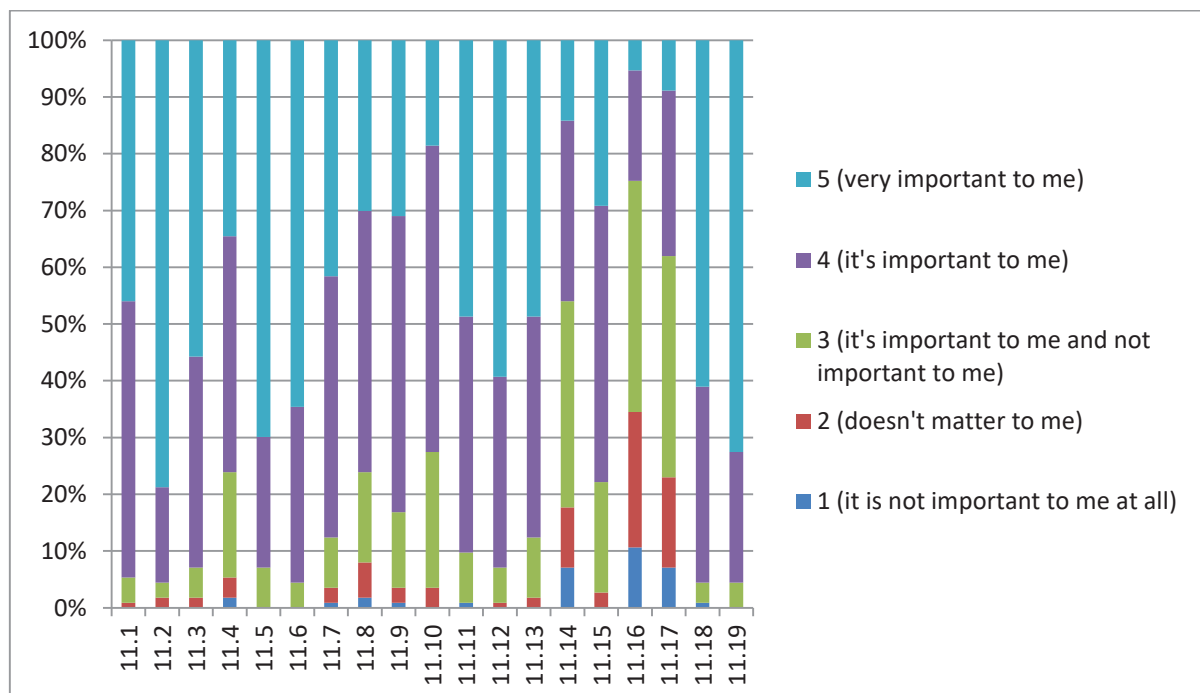
The research was conducted in the company Končar - distribution and special transformers Zagreb, hereinafter referred to as Končar D&ST. A convenient sample (N= 278) participated in the research. Of these, 73.5% of respondents declared themselves male, while 26.5% declared themselves female. The structure of employees by age varied, in the smallest age group from 18 to 24 years there are 1.8% of employees, in the group from 25 to 30 years there are 12.4% of respondents, from 31 to 35 years there are 23.9%. The most numerous group is the middle age group, from 36 to 40 years old, with 31% of respondents, while 10.6% of respondents were 51 and older. As for the level of education, the most numerous are those

with a university degree (53.1%). Regarding the job category, most employees declared themselves as employees without management authority (79.6%), while 0.9% of them belong to the Management. The majority of respondents (29.2%) have 10 to 15 years of experience in the company Končar D&ST. If we look at the structure of employees according to employee status, the result is very impressive. The vast majority (96.5%) of respondents are in permanent employment. Regarding the salary, the majority of employees (63.4%) consider that they have an average salary. When it comes to general satisfaction in the company, more than half of the employees (54.9%) characterize their satisfaction as quite satisfactory. As for employee motivation, the majority (48.7%) are quite motivated.

4. Research results

The primary task of the research was to collect information about the satisfaction and motivation of the respondents. The statements used to examine the employees' attitudes are as follows: 1. salary level; 2. regularity of salary; 3. receiving bonuses and rewards after a job well done; 4. receiving recognition/praise after a job well done; 5. job security/permanent contract; 6. respecting the rights of workers; 7. the possibility of career development (advancement, education, experience); 8. the possibility of additional education (scholarships/tuition fees/specializations); 9. characteristics of the work you perform (challenging, dynamism...); 10. the level of responsibility you have in the organization; 11. relationship with superiors; 12. relationship with associates/colleagues; 13. way of organizing working hours (eg flexible working hours); 14. encouraging sports activities in free time; 15. the space where you work (ambience, equipment, etc.); 16. company size (according to the number of employees); 17. going on business trips; 18. going on vacation and 19. balance between work and private life.

Figure 1: The importance of individual variables for employee satisfaction

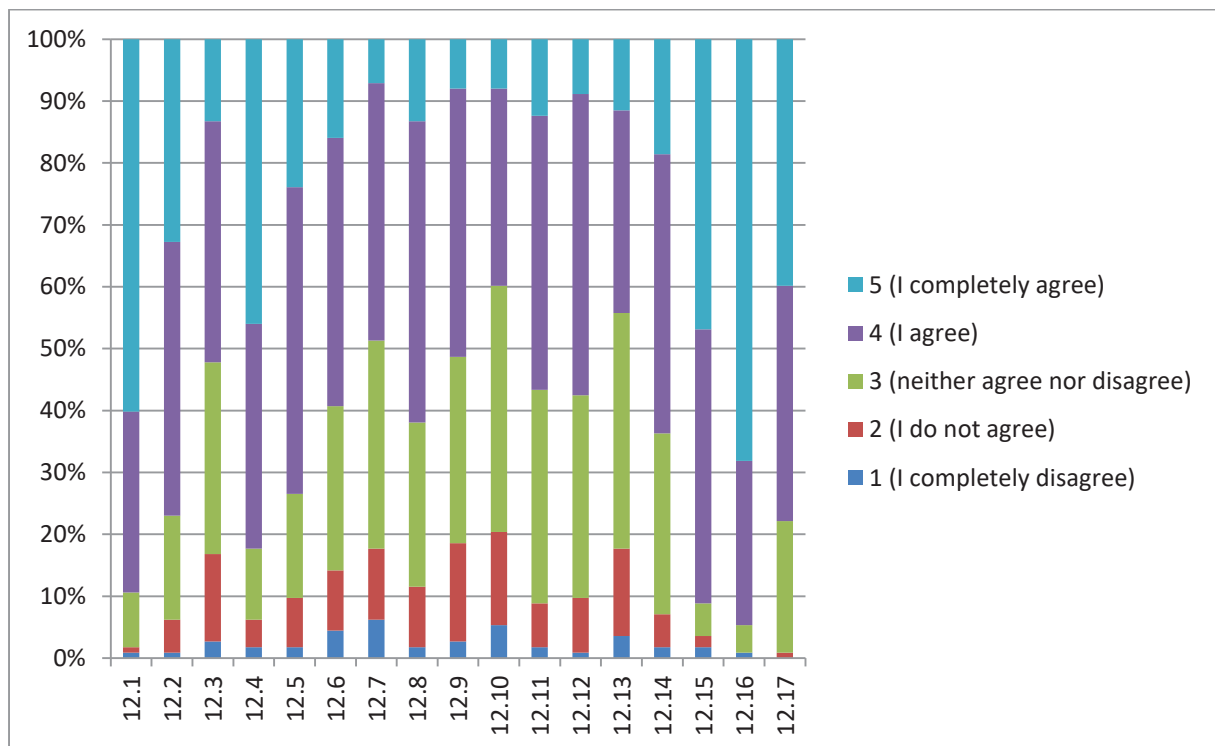


Source: Vranić (2023:72)

From graph 1, it is evident that employees chose "it is not important to me at all" for only a few statements, namely: receiving recognition/praise after a job well done, the possibility of career development (promotion, education, experience), the possibility of additional education (scholarships/scholarships/specializations), characteristics of the work you perform (challenging, dynamic...), relationship with superiors, encouragement for sports activities in your free time, company size (according to the number of employees), going on business trips and going on vacation. Of all the above, they consider the size of the company where they work to be the most unimportant. The parameter "doesn't matter to me" to the greatest extent also refers to the size of the company. The parameter "it's important to me and not important to me" is most represented in the statements: receiving recognition/praise after a job well done (18.58%), the level of responsibility you have in the organization (23.89%), encouraging sports activities in your free time (36.28%), the statement about the size of the company (40.71%) and the statement about going on business trips (38.94%). The statement "it's important to me" received the most votes for the statement: the level of responsibility you have in the organization with 53.98%, followed by the statement: the characteristics of the work you perform (challenging, dynamic...) with 52.21%, followed by statements with with the same result of 48%, namely: the salary and the place where you work. The last variable "very important to me" received the most votes for the following statements: regular salary (78.76%), balance between work and private life (72.57%), job security/permanent contract (69.91%), respect workers' rights (64.60%), relationship with co-workers/colleagues (59.29%) and receiving bonuses and rewards after a job well done (55.75%). Claims: the size of the company (according to the number of employees) and going on business trips received the least votes for the variable "very important to me".

Figure 1 shows significantly diverse answers, because employees are different individuals and have different types of satisfaction. What is quite important to note is that the salary parameter is not the most important criterion for the majority of the surveyed population regarding satisfaction at the workplace, more precisely, less than half of the respondents (46.02%) voted "very important to me". The majority of employees gave priority to some other claims that represent intangible benefits, over material ones. So, in front of the salary, in the opinion of the respondents, is safety at the workplace, a pleasant working environment that manifests itself through respect for the rights of workers, harmonious collegial relations and rewarding every additional effort.

In the following part, the authors observed the employees' agreement and disagreement with the statements: 1. positive communication with superiors greatly boosts my motivation for work; 2. I know what my tasks are at work because they are clearly defined; 3. information is transmitted throughout the organization so that everyone can be informed about work tasks in a timely manner; 4. at my place of work I have all the necessary equipment and tools that I need for the efficient performance of my work tasks; 5. I believe that my superiors take my opinion into account when making decisions; 6. I get clear feedback about my work from my superiors; 7. all employees work as if they were part of a team (cooperation between different sectors); 8. continuous investment is made in improving knowledge and skills; 9. powers are delegated so that employees can act independently; 10. problems are solved easily and without stress; 11. the organization strives for innovation and monitoring trends in the environment; 12. superiors set ambitious but realistic goals; 13. the organization's vision motivates employees; 14. I perform daily tasks without too much stress and pressure from superiors; 15. I am ready to make an additional effort to perform work tasks if there is a need for it; 16. I believe that when an employee is satisfied with the working conditions, then he is also efficient; 17. employee effectiveness depends on leadership.

Figure 2: Employee agreement with certain statements

Source: Vranić (2023:75)

If we look at the variable "completely disagree" it is evident that only the statement: employee effectiveness depends on leadership did not receive a single vote. This means that employees believe that their work performance is only encouraged by their superior. The statement "I do not agree" received the most votes for the statements: powers are delegated so that employees can act independently (15.93%), problems are solved easily and without stress (15.04%), the vision of the organization motivates employees (14, 16%) this information is transmitted throughout the organization so that everyone can be informed about work tasks in a timely manner (14.16%). The percentages are not overly significant, but still indicate problems in the organizational structure. The respondents believe that they are not informed about their work obligations in a timely manner and that problems are solved under stress, which is by no means a good indicator. Furthermore, the variable "neither agree nor disagree" indicates the respondents' indifference towards certain statements, and the most represented statements according to this criterion are: they solve problems easily and without stress (39.82%), the organization's vision motivates employees (38.05%), the organization strives for innovation and following trends in the environment (34.51%), all employees work as if they are part of a team (cooperation between different sectors) (33.63%), information is transmitted throughout the organization so that everyone can inform about work tasks (30.97%) and they delegate authorities so that employees can act independently (30.09%). The "I agree" variable has the fewest votes for the statement: I believe that when an employee is satisfied with the working conditions, he is also efficient (26.55%). The most affirmative answers have the statements: I believe that my superiors take my opinion into account when making decisions (49.56%), continuous investment is made in improving knowledge and skills (48.67%), superiors set ambitious but realistic goals (48.67%), I perform my daily tasks without too much stress and pressure from my superiors (45.13%), while the same number of votes are said: the organization strives for innovation and following trends in the environment (44.25%) and I

am ready to invest additional effort to perform work tasks if there is a need for it (44.25%). The results of this variable are indicators that the organization is healthy and that employees positively value the organization's investment in progress and innovation, which today is necessary to maintain competitiveness on the market. The "I completely agree" parameter counts the most votes for the statement: I believe that when an employee is satisfied with the working conditions, then he is also efficient (68.14%). Therefore, the respondents believe that the only way to their maximum efficiency is satisfactory working conditions. Then, with a high percentage of votes, the statements follow: positive communication with superiors greatly boosts my motivation to work (60.18%), I am ready to put in extra effort to complete work tasks if there is a need for it (46.90%), on my at my workplace, I have all the necessary equipment and tools that I need to effectively perform my work tasks (46.02%), employee efficiency depends on leadership (39.82%) and the statement: I know what my tasks are at work because they are clearly defined (32.74%). The statements that received the least agreement were: all employees work as if they are part of a team (cooperation between different sectors) (7.08%), authority is delegated so that employees can act independently (7.96%) and problems are solved easily and without stress (7.96%). As with the previous graph, it is evident that the answers vary, respondents state their agreement or disagreement depending on their subjective preferences. While a claim is extremely important to one respondent, it does not represent any significance to another employee.

In a further step, the authors observed the correlation between the question about the amount of income in the Končar D&ST company and the general satisfaction of employees. Respondents could rate their satisfaction as: very satisfied, quite satisfied, moderately satisfied, somewhat dissatisfied and very dissatisfied. Workers who declared that they have below-average incomes in the Končar D&ST company are 50% satisfied and 50% moderately satisfied in their workplace. Workers who have an average salary rank their satisfaction as follows: 1.3% somewhat dissatisfied, 18.1% very satisfied, 27.8% moderately satisfied, and 52.8% quite satisfied. When it comes to workers with an above-average salary, there are no very dissatisfied, 2.50% are somewhat dissatisfied, there are also no moderately satisfied, 59% of respondents are quite satisfied with their workplace, and 38.50% of respondents are very satisfied.

Furthermore, the authors observed the correlation of questions about employee satisfaction and claims: amount of salary, regularity of salary, receiving bonuses and rewards after a job well done. To the question "How would you rate your satisfaction in the company Končar D&ST?", respondents who ranked their general satisfaction as "very satisfied", 50% of them believe that the amount of salary is very important, 46.4% that it is important, and only 3.6% that it is important and that it is not important. None of the respondents declared that the amount of salary is not important to them or not important at all. When it comes to salary regularity, very satisfied respondents in 85.7% of cases say that salary regularity is very important to them, while 10.7% are important, and only 3.6% voted indeterminately, that salary regularity is important to them and important and not important. Here, too, none of the interviewees stated that the regularity of their salary is not important to them. Very satisfied respondents in 57.1% of cases believe that receiving bonuses and rewards after a job well done is very important. 35.7% of them consider it important, while 7.2% of workers are indifferent to receiving bonuses and rewards after a job well done. None of the respondents declared that it is not important to me and it is not important to me at all.

The following variables that were correlated showed satisfied employees and salary level, regularity of salary, importance of getting bonuses and rewards after a job well done. When it

comes to satisfied employees, 38.7% of them think that salary is very important, 54.8% of them think that it is important, 4.8% that it is both important and not important, and 1.7% of respondents think that salary it's not important. Not a single respondent declared that his salary was not important to him at all. 71.0% of satisfied employees consider salary regularity very important, 22.6% of respondents say that salary regularity is important to them, 3.2% say it is both important and not important, and also 3.2% of respondents think that salary regularity is not important. When it comes to receiving bonuses and rewards after a job well done, satisfied respondents say that in 50% of cases this benefit is very important to them, 45.1% of respondents said it is important to me, 1.7% said it is important to me and not important, while 3.2% of respondents think that receiving bonuses and rewards after a job well done is not important. No one said it doesn't matter to me at all.

In a further analysis, the authors observed the correlation of moderately satisfied employees in relation to the amount of salary, regularity and the importance of receiving rewards and bonuses after a job well done. When it comes to moderately satisfied employees, 61.9% of them believe that the amount of salary is very important, 33.3% that it is important, and 4.8% that it is both important and not. When it comes to moderately satisfied employees, 90.5% of them consider regularity of salary to be very important, while 9.5% of them consider it important. None of the respondents made any other claim. When it comes to moderately satisfied employees in relation to the importance of receiving bonuses and rewards, 71.4% of them believe that additional rewards are very important, 14.3% of respondents believe that they are important, while 14.3% of respondents declared that they is important and not important.

The last comparable variable relates slightly dissatisfied employees to the amount of salary, regularity of salary and the importance of receiving bonuses and rewards after a job well done. Half of somewhat dissatisfied employees think that the amount of salary is very important, while half of somewhat dissatisfied respondents think that it is important. None of this group of respondents is indifferent to the amount of salary and does not consider it unimportant. Somewhat unsatisfied respondents were unanimous when it comes to the importance of salary regularity. All respondents of this group believe that regular salary is very important. Somewhat dissatisfied employees were also very specific here. 50% of them think that getting bonuses and rewards after a job well done is very important, while 50% of them think that it is important. No one from this group of respondents is indifferent and no one considers that receiving bonuses and awards is not important.

In conclusion, employee satisfaction and high morale, and thus their success at work and contribution to the achievement of organizational goals, are possible if organizations, i.e. managers, are aware of the following:

- employee motivation is influenced by various factors, both material, social and psychological,
- some factors motivate people, while others only demotivate them when they are not present,
- employees have various needs,
- the needs of employees are different in the work environment,
- it is optimal to use a situational approach when motivating employeesup,
- what motivates individuals is not necessarily what the manager thinks is motivating them,
- employees are motivated if their expectations are met,
- the reward system must be fair,

— rewards are a more effective means of motivation than punishments.

5. Conclusion

If the company wants a satisfied employee, it is necessary to invest maximum effort in order to find out how to cause the maximum amount of satisfaction and in this way motivate the employee to perform efficiently when performing work tasks. In accordance with the above, companies should have a well-designed and elaborated motivational system. The entire motivational system consists of a material and non-material reward system. Both systems are equally important. The authors carried out the empirical research through this paper, the task of which was to find out which system brings more satisfaction to the employees. The results obtained from the research confirm the hypothesis from the beginning of the paper, which claims that material benefits are not the most important motivators that influence employee satisfaction. Although material benefits are necessary for all employees primarily to meet the basic needs of life, the respondents ranked good collegial relations, respect for workers' rights, regular pay, and rewarding after a job well done as more important than the amount of salary. The research brings a very important conclusion when it comes to employee satisfaction, if the employee lacks satisfaction at the workplace due to a bad and demotivating work environment, as well as respect for superiors, a high salary is not a sufficient motivator for efficient work.

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A scientific paper

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PURCHASE PREFERENCES IN CROATIAN STORES FRAMED BY SHOPPERS' DEMOGRAPHIC CHARACTERISTICS

ABSTRACT

The Covid-19 crisis has significantly accelerated the change in shoppers' habits, leaning progressively more towards online shopping. However, with the lessening of the severity of global pandemic conditions, shoppers' habits will likely at least partially return to typical patterns. This research aims to check consumer preferences towards in-store shopping in the Republic of Croatia and analyse differences in choices considering demographic differences among respondents. Gender, age group, education level and respondents' work status were chosen as variables for distinction. The analysis used Mann-Whitney U, Kruskal Wallis H and Dunn Bonferroni's tests to determine significant differences in in-store shopping patterns between demographic (sub)groups. The results, based on analysis of the sample containing 394 respondents, show that, within all examined demographic groups, subjects prefer to shop in-store rather than online. However, distinct demographic subgroups still vary significantly in stated shopping preferences regarding the selected product groups, as well as the patterns of behaviour while shopping in stores.

Key words: *decision making, in-store shopping, preferences, shopping behaviour.*

1. Introduction

Understanding consumer preferences and behaviour patterns have always interested both microeconomics and decision theory. For example, the transitivity of preferences is a prerequisite for many important theories in economics. It is crucial to Savage's model of subjective expected utility (Karni, 2008), which is based on the ability of decision makers to understand their utility curve, which is the result of applying preferences. Understanding consumer behaviour is vital to companies' marketing efforts in the business world. However, in addition to marketing, understanding preferences is crucial for operations management (Grubišić (ed.), 2022) in its key areas such as capacity planning, inventory and supply chain management, etc. Understanding consumer preferences and behaviour is essential after the Covid-19 pandemic disrupted retail business, forcing retailers and their customers to turn to online commerce.

Online purchases from private persons for physical goods within the EU (Eurostat, 2023a) have an increasing trajectory, reaching 18.85% in 2022, with an increase of 0.73 percentage points (pp) compared to 2020 and 0.39 pp to 2021. However, in Croatia, online purchases from private persons for physical goods decreased, reaching 8.07% in 2022. This is a decrease of 1.21 pp compared to 2021 and 4.45 pp to 2020. The same trend is noticeable among product groups online, such as food and beverages (-1.79 pp in 2022/2020), computers, tablets, mobile phones or accessories (-2.93 pp in 2022/2020), consumer electronics and household appliances (-0.64 pp in 2022/2020), except for clothes, shoes or accessories with an increase in online purchases (+4.62 pp in 2022/2020) (Eurostat, 2023c). Therefore, a return to the pre-Covid-19 habits of more frequent shopping in stores is evident. The trend is supported by perceived barriers in online purchases by individuals (Eurostat, 2023d). The most common reasoning for not buying via a website or an app in Croatia were: individuals prefer to shop in person, they like to see products, loyalty to shops or force of habit – 29.04% (EU: 17.4%), individuals have concerns about the cost of delivery of goods – 7.07% (EU: 2.79%) and individuals have concerns about payment security or privacy – 5.82% (EU: 5.61%). The Croatian Bureau of Statistics data (2023) on retail turnover in 2021 and 2022 further confirms the preference for in-store purchases, with a recorded increase of 15.8% (2021 to 2020).

Based on the aforementioned information, this work aims to identify and determine the patterns in the purchase decisions of customer subgroups, especially when shopping in physical stores. The new knowledge that this work should lead to could provide answers to the research questions raised: *is there and how big is the difference in the extent of the preferred form of shopping among customers in Croatia, and does the behaviour while shopping in stores differ among subgroups of customers based on their gender, age group, work status and level of education they have achieved*. The intended impact of this research on decision theory is to shed additional light on the always puzzling behaviour of consumers, particularly with respect to their demographic characteristics. This is particularly important in understanding Croatian shoppers who, unlike shoppers in most other European countries, have taken a step back and returned to the pre-Covid 19 percent of in-shop purchases. This research aims to improve understanding of who these shoppers are and why they prefer to shop in stores. This research could also be useful to retail decision makers, as a better understanding of their customers' behavioural patterns will allow them to better adjust their operational strategies.

The literature review of the paper presents the theoretical framework and explains the chosen demographic determinants of buyers. The following section, Methodology, Sample, and Data, provides insight into the data collection and analysis tools used and an overview of the sample characteristics. The results section provides a general overview of the observed shopper preferences and behaviours, and then presents detailed differences in purchase decisions among demographic subgroups. Finally, the discussion section provides an overview of the research findings, which are contrasted with previous research findings, and concludes with the main findings, limitations, and implications of this paper.

2. Literature review

Despite the increase in online retail channels and the many benefits online shopping offers, physical stores are crucial to customers' shopping experiences (Kim et al., 2020). Online shopping still does not match the value in-store retail gives. It lacks the important physical cues of experiencing products (Rathee & Rajain, 2019; Moon, Choe, Song, 2021; Hermens et al., 2022), shoppers lack trust in the system (Hermens et al., 2022), and it does not meet social interaction needs (Aw et al., 2021; Rummo et al., 2022). In-store and online retail cannot be viewed solely as competition but as complementary businesses (Moon, Choe, Song, 2021). To

survive, shopping stores need to adjust and diversify store functions. To adapt appropriately, the shoppers' in-store decision-making behaviour and the factors to their behaviour need a better understanding. The population and its demographics within some geographical distance from a shopping store represent the potential clients. Customers' behaviour towards any goods is not monolithic, so an analysis of their demographic is needed to understand it.

Considerable research aimed to determine behavioural patterns and preferences in shopping, specifically for each *gender*. When explaining gender differences in in-store behaviour, Luceri and Latusi (2012) found women are more likely to spend more time in stores as shopping is for them a more pleasant activity. A study published by Audrain-Pontevia and Vanhuele (2016) and Kim et al. (2020) showed significant gender differences in in-store shopping where male and female shoppers had different loyalty reasoning and the mental imagery of a store. Hood et al. (2020) observed that men and women influenced their purchase decision behaviour differently during in-store shopping. Moon, Choe and Song (2021) determined that women are likelier to make online purchases, while men prefer shopping in-store. Genders will act differently depending on the type of product purchased (Bašić, Gaćina, Blažević, 2020; Boustani, Sayegh, Boustany, 2022). No difference in the spending habits between men and women was found during in-store shopping, but when conducted online, women tend to spend more (Troung, Troung, 2022).

When considering possible *age* differences, Moon, Choe & Song (2021) find that men in their 20s and 30s are most likely to choose to shop online, confirming research findings from Hood et al. (2020), who determine that younger generations, but not the youngest, are more likely to purchase online. This aligns with results (Audrain-Pontevia, Vanhuele, 2016) that shoppers' loyalty to in-store shopping changes after age 35. Buhaljoti, Habili and Abazi (2022) find shoppers aged 20-29 are most likely to make online purchases, with the intention decreasing with increase of the shoppers' age. Rummo et al. (2022) agree that the likeliness of buying online decreases with age, attributing such behaviour to a lack of social interactions in online purchases. Troung and Troung (2022) find no significant spending differences in age groups while shopping in-store. Önder and Demirel (2022) in their research found that age of the head of the family is among independent variables to affect online shopping frequency, but it is the least effective variable in their research. That is in line with recent research of Ud-Daulla and Hassan (2023) where age and gender are significant but least impactful factors in a switch from in-store to online shopping.

Colaço and de Abreu e Silva (2021) and Buhaljoti, Habili and Abazi (2022) find that in-store shopping preferences are negatively related to *education level*. No difference in spending levels during in-store shopping was determined while comparing different education level shoppers. While shopping online, the spending habits were much different, with the higher education level shoppers spending less than the lower education ones (Troung & Troung, 2022). Procher and Vance (2013) found no significance of education on the extent of shopping in stores and are arguing that possessing a driver's licence is a more important factor than education level. İlhan and İşçioğlu (2015) found a positive relation between education level and a probability of buying groceries online. Kumar (2014) showed that level of education strongly influences consumers' information seeking. However, research on influence of education is still inconclusive, as Pattanaik, Mishra and Moharana (2017) found no relation between education level and shopping patterns.

Pattanaik, Mishra and Moharana (2017) found no relation between *work status* and shopping patterns. Shoppers from higher social grades are more likely to buy online than those from lower grades (Hood et al., 2020). Social grade in their research is not the same as work status but is closely related. The authors find that employed individuals are more likely to visit stores on their commute to or from work, which is consistent with Smith et al. (2021) findings that individuals employed full-time or part-time are more prone to revisit physical stores on their

way to/from work. This is in line with pre-pandemic research by Lucieri and Latusi (2016) that employed individuals are more likely to visit more different stores when shopping. This is explained by the greater opportunity to visit them related to their commute. In contrast, Baltas et al. (2010) argued that working shoppers tend to engage in simplified shopping behaviour due to a lack of time. Procher and Vance (2013) found the connection between employment status and gender where employment reduces the relative amount of shopping in stores for women, but they are nevertheless more engaged in shopping than men in comparable employment status. İlhan and İşçioğlu (2015) were exploring engagement of women in online grocery shopping and found that employed women are more likely to shop online.

3. Methodology, sample and data

The empirical research was conducted from May to September 2022 using an online Google Forms questionnaire to collect the appropriate data. The total of 394 respondents filled out the questionnaire giving valid responses, presenting the sample for the research. A few different social networks were used to distribute the online Google Forms questionnaire to reach a diverse respondent group, thus achieving size and, later on, the aimed structure of the sample. The questionnaire consisted of questions that examine consumer shopping habits in in-store and online shopping. The demographic characteristics of the respondents are shown in Table 1, where the diversity of the sample can be observed. It can be observed that most respondents are women and that $\frac{3}{4}$ of respondents are between 21 to 50 years of age. Five groups of respondents were made based on their work status. Most respondents (75.1%) have an active working status (employed pupils/students, private/public sector employees and entrepreneurs), and almost half are employed in the private/public sector. Respondents are from different levels of education, where the largest subgroups are those with a high school education, followed by those with a university masters.

Table 1: Demographic characteristics of respondents

Category	Item	Frequency	(%)
Gender	Male	109	27.7
	Female	285	72.3
Age group	<21 years	31	7.9
	21-30 years	106	26.9
	31-40 years	91	23.1
	41-50 years	105	26.6
	51-60 years	29	7.4
	60+ years	32	8.1
Work status	Unemployed	71	18.0
	Employed pupil/student	67	17.0
	Entrepreneur	38	9.6
	Private/public sector employee	191	48.5
	Retired	27	6.9
Education level	Lower education	28	7.1
	High school education	175	44.4
	Bachelor education	59	15.0
	University master education or higher	132	33.5

N = 394

Source: Authors

This survey aims to examine and allow a better understanding of buying preferences of distinct product groups. Additional interests in the research were the behaviour of individuals while

shopping: setting a shopping budget, behaviour traits while in-store shopping, frequency of purchasing unnecessary products and satisfaction levels after a shopping experience. As a continuation of the behavioural patterns, the in-store shopping decision-making was questioned in more detail, exploring the importance of specific in-store shopping features. In addition to the general values for selected indicators, the differences among groups of subjects were analysed according to their demographic characteristics (gender, age group, working status and education level). Using IBM SPSS Statistics 20, Mann-Whitney U, Kruskal Wallis H, and Dunn-Bonferroni pairwise comparison tests were conducted to determine the (non)existence of statistically significant differences among certain demographic groups of respondents.

4. Results

The first set of questions referred to the buying preferences for specific product types: groceries, clothing and footwear, technical equipment, and gifts and presents, where respondents could choose more frequent shopping in-store (1) or online (2). Respondents prefer in-store shopping for all product groups (Table 2). Almost all (98.2%) respondents preferably buy groceries in-store, 62% of respondents prefer in-store clothing and footwear purchases, 61.4% for technical equipment in-store, and 67.0% for gifts and presents.

Most respondents (59.9%) claimed to put a limit on their shopping budget. The mean value of 2.98 was noted when evaluating answers to the statement "I often happen to buy products that I don't need" using a Likert scale (1 = disagree - 5 = agree), meaning respondents cannot deny or fully agree with it. The level of satisfaction (1 = dissatisfied - 5 = satisfied) of the respondents after the purchase, both in-store and online, has a mean value of 4.15, indicating that the respondents are mildly satisfied after the shopping activity. Only 2.8% of the respondents showed any level of dissatisfaction. While in the store, 68.0% of the respondents conducted their shopping activity relaxed, without time pressure (1), against 32.0% of those who shop in a hurry, aiming to leave the store as soon as possible (2). When asked about acting in crowds in stores, 50.8% of the respondents claimed they remain calmly waiting to reach the cash registers (1), 28.2% of them decided to visit the store at another point in time (2), and 21.1% gave up on the intended purchases (3).

Table 2: Descriptive statistics on respondents' shopping preferences

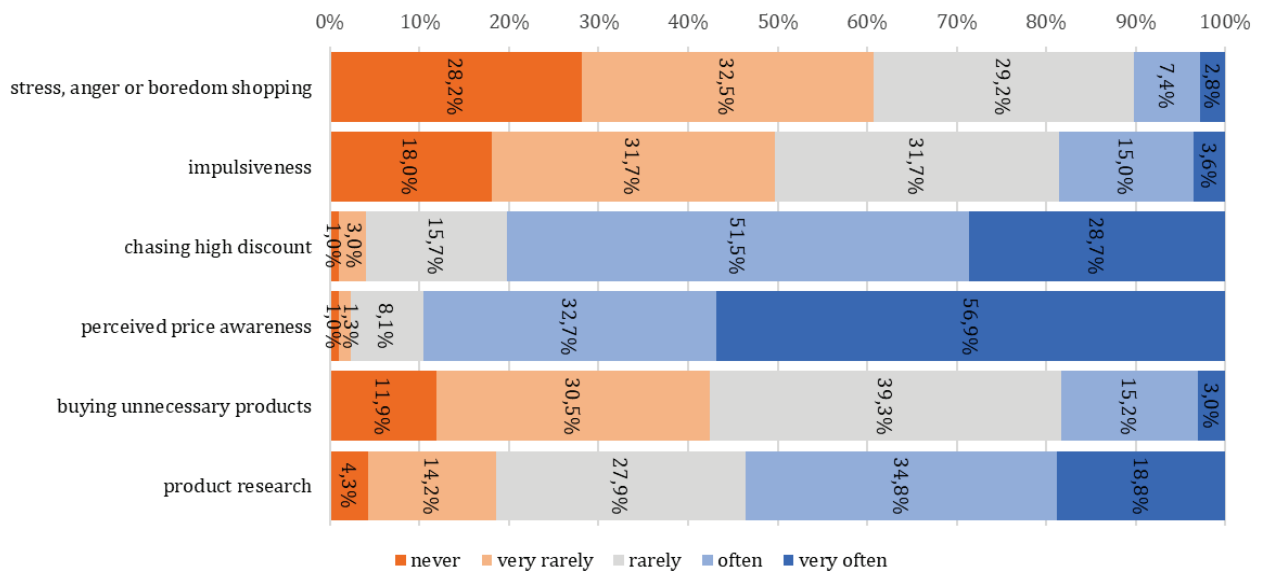
In-store and online shopping	N	Min.	Max.	Mean	Std. Dev.
Shopping preferences - groceries	394	1	2	1.02	0.132
Shopping preferences - clothes and footwear	394	1	2	1.38	0.486
Shopping preferences - technical equipment	394	1	2	1.39	0.487
Shopping preferences - gifts and presents	394	1	2	1.33	0.471
Shopping budget limit	394	0	1	0.60	0.491
Frequent purchase of unnecessary products	394	1	5	2.98	1.317
Post-shopping satisfaction level	394	1	5	4.15	0.855
In-store shopping	N	Min.	Max.	Mean	Std. Dev.
Behaviour while shopping in shopping stores	394	1	2	1.32	0.467
Behaviour when encountered by crowds in stores	394	1	3	1.70	0.799
Shopping in stores reasoning: stress, anger or boredom shopping	394	1	5	2.24	1.031
Shopping in stores: impulsiveness	394	1	5	2.54	1.060

Shopping in stores: chasing high discount	394	1	5	4.04	0.811
Shopping in stores: perceived price awareness	394	1	5	4.43	0.779
Shopping in stores: buying unnecessary products	394	1	5	2.67	0.974
Shopping in stores: product research	394	1	5	3.49	1.082
Shopping in stores: staff kindness importance	394	1	5	4.52	0.714
Shopping in stores: routine or urgency	394	1	5	3.28	1.275
Shopping in stores: communication with people	394	1	5	2.55	1.344

Source: Authors

The further focus of the analysis in this paper was in-store shopping decision-making behaviour. Respondents evaluated the statements offered to describe in-store shopping with the help of a Likert scale measurement (1 = never - 5 = very often). Table 2 summarises the mean value of the responses, and Figure 1 the share of respondents' answers. On average, stress, anger or boredom is rarely a reason for shopping ($M = 2.24$). Similarly, respondents state that (very) rarely buy impulsively while shopping in-store ($M = 2.54$). The proportion of those who often or very often buy impulsively is 18.6%. The statement about buying unnecessary products can be directly connected to impulsiveness. Respondents rarely buy unnecessary products during in-store shopping ($M = 2.67$), with 18.2% of respondents claiming to purchase unnecessary products often or very often. Comparing the previous values to the reported frequency of unnecessary products in general, regardless of the form of shopping ($M = 2.98$), it is possible to conclude that respondents are less likely to buy impulsively or to buy unnecessary products while shopping in-store. The reasons can be derived from the remaining claims the respondents evaluated. More than half of respondents use in-store shopping for product research ($M = 3.49$). As much as 89.7% claim that when in-store shopping often or very often, they have a good idea of product prices ($M = 4.43$). Price levels as a decision-making argument for in-store purchases are also visible from the statement on chasing high discounts ($M = 4.04$), for which 80.2% of respondents claim to do often or very often while shopping in-store.

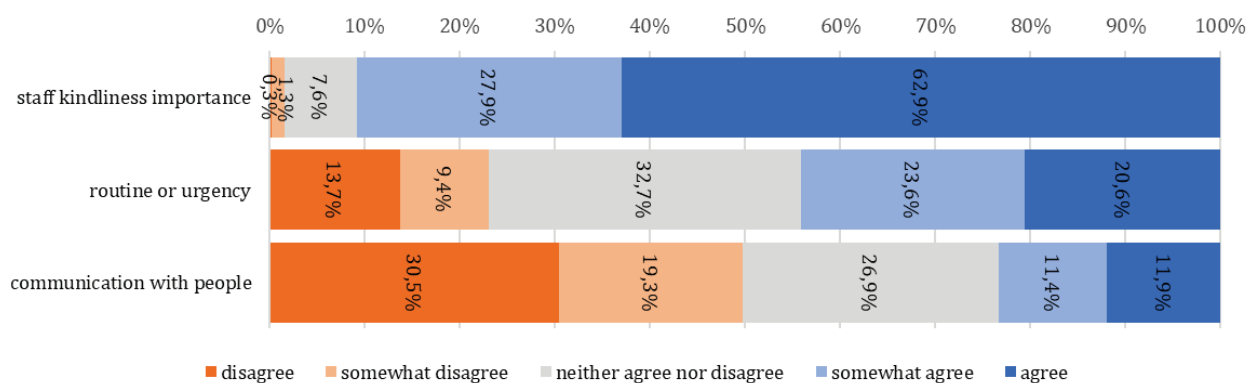
Figure 1: Respondents' in-store shopping behaviour



Source: Authors

In the last segment of Table 2 and Figure 2, some specific factors of in-store shopping are examined. Respondents assessed the level of agreement with the stated statements on a Likert scale (1 = disagree - 5 = agree). Staff kindness is very important to the respondents (M = 4.52), as 90.8% agree or somewhat agree. However, when buying in-store, communication with people proved not particularly important (M = 2.55). Only 23.3% agree or somewhat agree that communication with people is why they choose in-store purchases instead of online purchases. Another reason for choosing in-store shopping is routine or urgency, but the respondents cannot fully agree with this statement nor refute it (M = 3.28). In more detail, 44.2% of respondents agree or partially agree that they do their in-store shopping out of routine or urgency, 32.7% are indecisive, and 23.1% disagree or somewhat disagree.

Figure 2: Respondents' in-store shopping factors



Source: Authors

In addition to the general values in the interest of research, differences among sub-groups of respondents according to gender, age, working status and level of education have been observed. Mann-Whitney U tests were utilised to compare the differences between the gender

groups, and Kruskal Wallis H tests were conducted for other demographic groups. Dunn's post hoc pairwise comparison tests adjusted with the Bonferroni error correction were used to determine the groups showing significant differences.

4.1. Gender based differences

Using the Mann-Whitney U test for shopping activities based on the gender of the respondents (Table 3), two product groups showed statistically significant differences between male and female respondents. Female respondents show lower tendencies to shop for clothes and footwear in-store as opposed to tendencies to shop online than their male counterparts. In contrast, men show a lower level of in-store shopping for technical equipment than women. Regarding shopping behaviour for groceries, gifts and presents, no significant difference was present when comparing the two groups. Shopping budget limitations and post-shopping satisfaction levels are equal among genders. Statistically significant differences were present for the frequency of unnecessary purchases, where the female respondents had a higher mean value.

Table 3: Mann-Whitney U test for shopping activities based on gender

	Shopping preference s - groceries	Shopping preference s - clothes and footwear	Shopping preference s - technical equipment	Shopping preference s - gifts and presents	Shopping budget limit	Post-shopping satisfaction level	Frequent purchase of unnecessary products
Mann-Whitney	15348.000	12140.000	11799.500	15525.500	14293.500	13846.500	13056.500
Wilcoxon W	21343.000	18135.000	52554.500	56280.500	20288.500	19841.500	19051.500
Z	-0.797	-3.994	-4.378	-0.008	-1.443	-1.781	-2.506
Asymp. Sig. (2-tailed)	0.425	0.000	0.000	0.993	0.149	0.075	0.012

Grouping variable: Gender

Source: Authors

Table 4 shows influencing factors on in-store shopping decisions between genders. The only significant differences were in-store shopping reasoning of stress, anger and boredom, and impulsiveness, where for both behaviours, female respondents showed a higher mean value than men. Regardless of the shopping site (on-site or online), women are likelier to buy unnecessary products from men. For the other factors, such as chasing high discounts, perceived price awareness, the possibility of product research and the frequency of purchasing unnecessary products, no significant differences between women and men were evident.

Table 4: Mann-Whitney U test for statements influencing in-store shopping decisions based on gender

	Stress, anger or boredom shopping	Impulsiveness	Chasing high discount	Perceived price awareness	Buying unnecessary products	Product research
Mann-Whitney	12847.000	13308.500	14114.500	14725.000	14088.000	13698.500
Wilcoxon W	18842.000	19303.500	20109.500	20720.000	20083.000	54453.500
Z	-2.772	-2.284	-1.534	-0.904	-1.501	-1.884
Asymp. Sig. (2-tailed)	0.006	0.022	0.125	0.366	0.133	0.060

Grouping variable: Gender

Source: Authors

4.2. Age group based differences

The succeeding demographic determinant analysed was the age of the respondents. The six age groups are formed, as shown in Table 1. The Kruskal Wallis H test results provided evidence of significant differences between age groups only when buying clothes and footwear. No significant difference was present for buying the other product groups (Table 5). Dunn’s pairwise comparison tests were carried out for the age groups. Strong evidence was found of a difference between the groups 60+ and 21-30 years old ($p = 0.001$). The younger age group favoured online shopping when buying clothes and footwear ($M = 1.509$), while the most senior age group heavily chose in-store shopping ($M = 1.125$). There are also significant differences in post-shopping satisfaction levels between the 60+ group to the age groups less than 20 years ($p = 0.008$) and 21-30 years ($p = 0.015$). The younger age groups show higher levels of satisfaction (<21 years: $M = 4.516$; 21-30 years: $M = 4.340$) than the oldest age group (60+ years: $M = 3.719$). Significant differences in frequent purchases of unnecessary products were found between age groups 41-50 years and 21-30 years ($p = 0.018$), where the older age group was less frequently purchasing unnecessary products ($M = 2.695$) than the younger ($M = 3.292$).

Table 5: Kruskal Wallis H test for shopping activities based on age groups

	Shopping preferences - groceries	Shopping preferences - clothes and footwear	Shopping preferences - technical equipment	Shopping preferences - gifts and presents	Shopping budget limit	Post-shopping satisfaction level	Frequent purchase of unnecessary products
Chi-Square	4.479	20.379	10.708	6.633	10.688	18.519	16.706
Df	5	5	5	5	5	5	5
Asymp. Sig.	0.483	0.001	0.057	0.249	0.058	0.002	0.005

Grouping variable: Age group

Source: Authors

No significant differences were found among age groups regarding the influencing factors for in-store shopping decisions (Table 6), behaviour while encountering crowds, or the importance of staff kindness (Table 7). Significant differences were confirmed for in-store shopping reasoning of routine, urgency, and communication with people. The age group 60+ shows significant differences in choosing in-store shopping because of routine or urgency compared

to the other age groups having a much higher tendency for in-store shopping because of this specific determinant ($M = 4.125$) than the other age groups. Similar results were encountered with the determinant communication with people. Once again, the age group 60+ years has significantly different results ($M = 3.313$) than the respondents from the two youngest age groups (<20 years: $M = 2.161$; 21-30 years: $M = 2.123$).

Table 6: Kruskal Wallis H test for statements influencing in-store shopping decisions based on age groups

	Stress, anger or boredom shopping	Impulsiveness	Chasing high discount	Perceived price awareness	Buying unnecessary products	Product research
Chi-Square	2.963	9.878	9.173	2.642	4.563	6.661
Df	5	5	5	5	5	5
Asymp. Sig.	0.706	0.079	0.102	0.755	0.471	0.247

Grouping variable: Age group

Source: Authors

Table 7: Kruskal Wallis H test for statements influencing in-store shopping determinants based on age groups

	Behaviour while shopping	Behaviour when encountered by crowds	Staff kindness importance	Routine or urgency	Communication with people
Chi-Square	9.809	9.117	2.932	20.361	25.678
Df	5	5	5	5	5
Asymp. Sig.	0.081	0.105	0.711	0.001	0.000

Grouping variable: Age group

Source: Authors

4.3. Work status based differences

The analysis of differences in shopping behaviour regarding the respondent's work status (see Table 1) showed significant differences while shopping for clothes, footwear and technical equipment (Table 8). Regarding clothing and footwear purchases, a significant difference occurred while comparing the shopping habits of employed pupils/students and retirees ($p = 0.001$). Employed pupils/students turn to online shopping ($M = 1.552$), contrasting retirees who choose in-store shopping ($M = 1.111$), aligning with behavioural differences based on age groups. The younger age groups preferred online shopping for clothes and footwear, and the oldest group heavily favoured in-store shopping. The significant difference between different works status groups regarding technical equipment purchases is between entrepreneurs and retirees ($p = 0.027$), where the entrepreneurs tend to buy technical equipment more online ($M = 1.553$), in sharp contrast to the retirees ($M = 1.185$). Significant differences for the remaining product groups were not determined. The work status groups had statistically different habits in setting shopping budget limits, frequent purchases of unnecessary products and their post-shopping satisfaction level. Retirees ($M = 0.815$) were most adhered to setting a budget limit and significantly different ($p = 0.05$) from the entrepreneurs who were more relaxed with their shopping limits ($M = 0.473$). Employed pupils/students purchased more frequently unnecessary products ($M = 3.567$), which was significantly different to public/private sector employees ($p = 0.003$) and retirees ($p = 0.002$), who were much more careful with their purchases ($M = 2.874$ and $M = 2.444$ respectively). Evident differences occurred between the same groups regarding their post-shopping satisfaction level. Very satisfied ($M = 4.522$) were the employed

pupils/students, different to less satisfied private/public sector employees ($p = 0.004$) and retirees ($p = 0.000$).

Table 8: Kruskal Wallis H test for shopping activities based on work status

	Shopping preferences - groceries	Shopping preferences - clothes and footwear	Shopping preferences - technical equipment	Shopping preferences - gifts and presents	Shopping budget limit	Post-shopping satisfaction level	Frequent purchase of unnecessary products
Chi-Square	2.682	17.419	12.966	4.988	14.766	22.851	18.194
Df	4	4	4	4	4	4	4
Asymp. Sig.	0.612	0.002	0.011	0.289	0.005	0.000	0.001

Grouping variable: Work status

Source: Authors

The only significant differences regarding the influencing factors for in-store shopping decisions found among the respondents with different work statuses were impulsiveness and chasing high discounts (Table 9). Retirees were less likely to impulsively buy in-store ($M = 2$), significantly different ($p = 0.013$) to employed pupils/students ($M = 2.791$) but were more likely to chase high discounts in-store ($M = 4.296$) than entrepreneurs ($p = 0.07$, $M = 3.711$). No significant differences among work status groups regarding shopping in-store behaviour were proven. Still, some were evident while encountering crowds (Table 10), where employed pupils/students and entrepreneurs acted differently ($p = 0.013$). Employed pupils/students were most likely to remain calmly waiting to reach cash registers ($M = 1.493$), while entrepreneurs would choose to visit the store at another time ($M = 2$). Staff kindness is equally important across all the work status groups. Lastly, significant differences were evident in choosing in-store shopping because of routine or urgency and communication with people reasoning. Employed pupils/students, like the youngest respondents, least favourably chose in-store shopping because of routine or urgency ($M = 3.015$). This is significantly different ($p = 0.042$) from the retirees who, like the oldest age group, most agreed to choose in-store shopping precisely because of that reason ($M = 3.889$). Retirees also tend to choose in-store shopping because of the communication with people ($M = 3.333$), which is significantly different to employed pupils/students ($p = 0.017$) as well as to the unemployed subgroup ($p = 0.011$), who somewhat disagree with that statement ($M = 2.329$ and $M = 2.338$ respectively).

Table 9: Kruskal Wallis H test for statements influencing in-store shopping decisions based on work status

	Stress, anger or boredom shopping	Impulsiveness	Chasing high discount	Perceived price awareness	Buying unnecessary products	Product research
Chi-Square	2.777	11.397	10.252	2.224	9.332	2.513
Df	4	4	4	4	4	4
Asymp. Sig.	0.596	0.022	0.036	0.695	0.053	0.642

Grouping variable: Work status

Source: Authors

Table 10: Kruskal Wallis H test for statements influencing in-store shopping determinants based on work status

	Behaviour while shopping	Behaviour when encountered by crowds	Staff kindness importance	Routine or urgency	Communication with people
Chi-Square	6.955	11.531	3.679	10.551	12.909
Df	4	4	4	4	4
Asymp. Sig.	0.138	0.021	0.451	0.032	0.012

Grouping variable: Work status

Source: Authors

4.4. Education level based differences

This analysis showed different shopping patterns amongst separate education level groups (Table 11). Statistical differences were found among the groups for all product groups offered. While buying groceries, a significant difference occurs between the high school education group and the group with a university master's education or higher ($p = 0.003$), where the higher educated group shows some higher preference for buying groceries online. Significant differences appear between the two groups while shopping for clothes and footwear ($p = 0.020$), where the lower educated ($M = 1.143$) are most likely to choose in-store shopping. In contrast, the higher school educated are almost equally likely to choose between online and in-store shopping for clothes and footwear ($M = 1.440$). Significant differences also exist among groups when buying technical equipment. The lowest education group almost exclusively buys technical equipment in-store ($M = 1.036$), while the highest education level group tends to buy technical equipment online ($M = 1.523$). Regarding purchasing gifts and presents, significant differences ($p = 0.039$) occur between the lower education group and the university master or higher education group, where the highest-educated group uses online shopping significantly more ($M = 1.409$) than the lowest-educated group ($M = 1.143$). Other shopping behaviours also differ from the different education level groups. Shopping budget limitation, frequency of unnecessary product purchases and post-shopping satisfaction levels are all significantly different. Lower education respondents stick more strictly to a set budget limit ($M = 0.750$), in contrast to ($p = 0.050$) the university masters or higher education ($M = 0.507$). The frequency of purchasing unnecessary products significantly differs among university master's or higher education and high school education respondents ($p = 0.050$), with the high school education respondents buying such products more frequently ($M = 3.154$). The post-shopping satisfaction level shows significant differences between the lower education group and high school education ($p = 0.010$) and bachelor education level ($p = 0.001$). Expectedly, the lower education group responses had the lowest value ($M = 3.428$), but all groups tended to be mildly satisfied after the shopping activity.

Table 11: Kruskal Wallis H test for shopping activities based on education level

	Shopping preferences - groceries	Shopping preferences - clothes and footwear	Shopping preferences - technical equipment	Shopping preferences - gifts and presents	Shopping budget limit	Post-shopping satisfaction level	Frequent purchase of unnecessary products
Chi-Square	14.109	9.812	28.801	9.149	8.589	19.253	10.677
Df	3	3	3	3	3	3	3
Asymp. Sig.	0.003	0.020	0.000	0.027	0.035	0.000	0.014

Grouping variable: Education level

Source: Authors

Evidence of differing reasoning for in-store shopping decisions amongst distinctive education level groups is shown in Table 12. Impulsive in-store shopping behaviour significantly differed amongst the groups. The lower education level group had significantly different results than the bachelor education ($p = 0.043$) and the university master or higher education level group ($p = 0.021$). The lower education level group rarely impulsively decides to shop in-store ($M = 2.036$). In contrast, the bachelor education ($M = 2.661$) and the university master or higher education level group ($M = 2.614$) are proven to be more likely to make such decisions. The decision to shop in-store because of chasing high discounts also gave different results for the groups. The lower education level shoppers would more often choose in-store shopping because of the store's high discounts ($M = 4.464$). Such behaviour was significantly different to the remaining education level groups ($p = 0.017$; $p = 0.029$; $p = 0.006$), all of which would still often do in-store shopping because of the same. In-store shopping decisions because of product research also differed amongst the groups. The differences were significant between university master's or higher education and high school education ($p = 0.006$) and lower education level groups ($p = 0.002$). The highest educated group would often shop in-store because of product comparison ($M = 3.780$) than the two lower education level groups. No differences among the education level groups were evident within the stress, anger or boredom and perceived price awareness in-store shopping decisions, nor were they for buying unnecessary products. Once again, it is indicative that while in-store shopping, the frequency of purchasing unnecessary products is lower than the general mean value of in-store and online shopping combined.

Table 12: Kruskal Wallis H test for statements influencing in-store shopping decisions based on education level

	Stress, anger or boredom shopping	Impulsiveness	Chasing high discount	Perceived price awareness	Buying unnecessary products	Product research
Chi-Square	7.661	9.197	11.173	3.990	5.687	18.378
Df	3	3	3	3	3	3
Asymp. Sig.	0.054	0.027	0.011	0.263	0.128	0.000

Grouping variable: Education level

Source: Authors

Noticeable were the differences in behaviour while shopping in stores and when encountering crowds (Table 13). For both behavioural patterns, significant were the differences between groups with high school education and university master's or higher. The high school educated respondents to conduct their in-store shopping relaxed, without time pressure ($M = 1.240$), which is different from ($p = 0.004$) the highest educated group, who more often try to leave the

store as soon as possible ($M = 1.424$). The same pattern can be transposed to encountering crowds in stores. Although both groups tend to visit the store at some other time, the high school education level group shows a preference to calmly wait to reach the cash register ($M = 1.554$). University master's or higher education level respondents act differently ($p = 0.008$) and are more prone to leave and visit at another time ($M = 1.856$). Staff kindness and communication with people importance do not differ amongst the groups. The differences were evident for shopping in stores because of routine or urgency. Significant differences were present between the lower education level group and all the other groups ($p = 0.022$; $p = 0.002$; $p = 0.003$), as they had the highest mean values ($M = 4.071$), somewhat agreeing with the statement of shopping in stores because of routine or urgency.

Table 13: Kruskal Wallis H test for statements influencing in-store shopping determinants based on education level

	Behaviour while shopping	Behaviour when encountered by crowds	Staff kindness importance	Routine or urgency	Communication with people
Chi-Square	11.950	11.380	1.790	14.415	5.463
Df	3	3	3	3	3
Asymp. Sig.	0.008	0.010	0.617	0.002	0.141

Grouping variable: Education level

Source: Authors

5. Discussion

The analysis in this research showed that in-store shopping remains the dominant method for purchasing clothes and footwear, technical equipment, gifts and presents, especially groceries. Somewhat unexpectedly, routine or urgency is not the principal reason for choosing in-store shopping, and communication with people is even less important. However, staff kindness is very important to shoppers. In-store shopping is conducted in a relaxed manner, without high time pressure. Infrequent occasions of stress, anger or boredom shopping and rare occurrences of impulsive shopping support the same. The frequency of unnecessary product purchases declines while shopping in stores, as shoppers often choose in-store shopping for product research and can very often easily perceive product prices.

Female shoppers are more likely to buy unnecessary products in general, but this is not true when shopping in-store. Impulsive in-store shopping or shopping because of stress, anger or boredom is more common with female shoppers. Moreover, women are likelier to shop for clothes and footwear online than men, i.e., comparatively less likely to shop in-store. Conversely, men are comparatively more prone to shop online when buying technical equipment, meaning women will be more in-store-oriented. These findings are in line with Boustani, Sayegh and Boustany (2022) but are different to Bašić, Gaćina and Blažević (2020) results that men more frequently buy tech products in-store.

The age of shoppers has proven to be influential with specific shopping determinants. Generally, shoppers up to 30 years of age buy unnecessary products more frequently than older ones, but not while shopping in stores. The younger shoppers are more satisfied after shopping than the older ones. As for the different product groups, significant differences occur only for clothing and footwear, for which the younger generations prefer online shopping. The 60+ year-old shoppers choose to shop in stores because of routine or urgency much more frequently than

all the other groups, and communication with people is, compared to different age groups, the most important determinant for choosing in-store shopping. These findings are relatable to the findings of Hood et al. (2020) and Moon, Choe and Song (2021), who found that younger people are more likely to buy online, as it is with Audrain-Pontevia and Vanhuele (2016) and Rummo et al. (2022) who found that older people are more likely to purchase in-store.

Somewhat foreseen by the previous demographic characteristics of shoppers is the influence of different work status groups. Employed pupils/students are most likely to wait in line when encountered by crowds in shopping stores and are the most likely to purchase unnecessary products. They prefer to buy clothing and footwear online and are the least likely to choose in-store shopping because of routine, urgency, or communication with people. Entrepreneurs are the least likely to set a shopping budget. If encountered by crowds, they will leave the store and come by at another time. This group is the most likely to buy technical equipment online. Private/public sector employees are less likely to buy unnecessary products, with retirees doing so the least. Retirees are also firm in setting budget limits. They choose in-store shopping because of routine or urgency and care the most about communication with people while shopping in shopping stores. They are almost sure to buy clothes, footwear, and technical equipment in shopping stores. These results contradict Troung and Troung (2022), who found no statistically significant differences between these groups.

Shoppers with lower education levels are the least likely to purchase products online, and they are most likely to set a shopping budget limit and have the lowest post-shopping satisfaction levels. They tend to shop in stores because of routine or urgency, are not prone to product research in stores, and do not shop impulsively, mostly chasing high discounts. High school education level shoppers buy groceries solely in-store. Still, they tend to buy clothes and footwear online, are most likely to buy unnecessary products, and are, together with bachelor education level shoppers, most satisfied post-shopping. While in the shopping store, they are relaxed, without time pressure, and calmly waiting in crowds to reach the cash register. Such shopping behaviour overlaps with younger shoppers and employed students/pupils. Bachelor and higher education level shoppers are the most likely to buy technical equipment online and to shop impulsively in stores. University masters or higher education shoppers will more often buy groceries online and are most likely to buy gifts and presents online. They are the least likely to set shopping budgets. They choose in-store shopping because product research is most important to them, but they will try to leave the shopping store sooner than later and visit it when less crowded. The tendency to lean towards online shopping for highly educated people is in line with the findings of Hood et al. (2020).

6. Conclusion

The Covid-19 pandemic has disrupted consumer habits and retailers' business practices, so a new balance between online and in-store shopping is sought. Statistical data show that the percentage of online purchases in Croatia is lower than the EU average, consistent with the research presented in this paper that showed consumers prefer shopping in-store for all product types. However, the consumer behaviour patterns and preferences analysis revealed some interesting statistically significant differences between the subsamples when respondents were grouped by age, gender, education level, and work status. By and large, the results confirm findings from previous research by other authors. However, not all research on this topic leads to similar conclusions about consumer decision patterns based on demographic analysis, so understanding consumer behaviour remains of interest to researchers and businesses. The

implications of this research to scholars is mainly that it provides additional insight into consumers' behaviour and provides an incentive for further research into factors framing decision making. For business practitioners, this research could provide an opportunity to further tailor their interventions to meet the needs of their customers. This research also has some limitations, some of which are due to the sample. The distribution of the data in the sample required the use of non-parametric methods. In addition, a larger sample size, harmonising the size of the subgroups, could allow better results. Another limitation relates to the questionnaire, as respondents who had no prior experience with online shopping were not asked to answer questions about their attitudes toward online shopping. Including their responses would allow for a better understanding of the concerns or barriers they face. In addition to overcoming these shortcomings, future research should also explore the reasons why some customers tend to avoid shopping in stores.

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A scientific paper

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TIME ALLOCATION, NEW HUMAN CAPITAL AND ECONOMIC GROWTH: AN EVIDENCE FROM THE INTERNATIONAL EXPERIENCE

ABSTRACT

Human capital is the driving force behind high-quality economic development, including technological improvements, the optimization of industrial structures, and gains in total factor productivity. Despite this, the interpretative power of traditional human capital theory is being challenged, which means in the fields of labor economics, macroeconomic growth, and micro-individual performance, the power is diminishing. Moreover, the emphasis non-cognitive skills has significantly broadened the scope of human capital theory. Besides cognitive skills such as education, on-the-job training and health, the influence of non-cognitive skills such as personality and preferences on human capital is gaining attention and has been incorporated as a key component of the new human capital. In addition, human capital accumulation is actually the result of individual time allocation. This paper constructs a time-allocation-based human capital accumulation model, and empirically analyzes the impact of the degree of holiday concentration on economic growth through human capital using cross-border international economic panel data from year 2018 to 2020. The findings imply that the more intensive the degree of holiday concentration, the more obvious the trend of restraining the economic growth of a country. In other words, neither continual work nor constant rest will improve an individual's labor productivity. The mechanism test reveals non-cognitive skills in human capital accumulation through leisure time impedes economic development by lowering per capita educational attainment. The policy implication of this paper is that the institutional arrangement of holiday structure should be reasonably coordinated and the "centralized" holiday system should be propelled to equalization and flattening in order to achieve the optimal development of individual performance in a balanced way.

Key words: *Time Allocation; Human Capital; Non-cognitive Skills; Economic Growth.*

1. Introduction

The issue of human capital accumulation has been debated since the days of classical economics, Lucas (1988), who argued that there are two sources of human capital accumulation: education and knowledge gained through work experience. Economists often assume that individuals' work experience is constant when evaluating the returns to human capital, and education is thus seen as the most important measure of human capital (Weil, 2005). The degree of education is typically quantified in terms of average years of schooling (time spent in education), but the quality of education can be quantified in terms of 'educational inputs' and 'educational outputs' (Heston, 2002). Aside from education and work experience, health is seen as a third form of human capital (Weil, 2005). Many studies have found considerable inequalities in health

between developing and developed countries, which can lead to income disparities between the two groups of countries (Heston, 2002; World Bank, 2003). Hamermesh & Biddle (1994) even discovered that in the United States and Canada, employees with an upper-middle appearance earned 12% more than their equally capable peers with a lower-middle appearance.

However, the growth of human capital in terms of education and health is limited, at least in developed countries: the average years of schooling in developed countries increased by only 0.9 years between 1980 and 2000, and life expectancy in the United States rose from 51 years in 1900 to 71 years in 2000, but is unlikely to increase by the same amount in the 21st century (Jones, 2002). However, it would be premature to conclude that the decline in human capital growth may imply a decline in aggregate economic growth (Jones, 2002), as traditional human capital theory has encountered significant challenges in explaining real-world economic phenomena: on the one hand, the explanatory power of traditional human capital theory is diminishing in areas such as labor economics, macroeconomic growth, and micro-individual job performance; on the other hand, the econometric evidence suggests that traditional human capital theory does not adequately explain real-world economic. In addition to cognitive competencies like as education and training, non-cognitive talents such as personality and preferences are gaining attention and are being incorporated as essential elements of the new human capital theory (Li & Zeng, 2012).

Heckman and Kautz (2013) further included personality skills as a separate component of the New Human Capital Model, and the stability of personality skills over time and plasticity across growth cycles provides a useful way to further explore the sources of personality skills; Wei (2015) contends that personality skills are primarily derived from life connotations, in other words personality abilities are embedded in life content and leisure behavior. Hence, the new human capital theory based on the allocation of free time is becoming a crucial component of academic research into the "black box" of human capital accumulation. Moreover, the structure of human capital (human capital expressed in education, on-the-job training, health, and leisure) contributes differently to economic growth at various phases. For developing countries, a relatively bigger share of education in human capital can contribute more to economic growth through education, whereas for developed countries it may be essential to expand the health and leisure components of human capital to make growth more sustainable. In conclusion, this paper acknowledges that there is no limit to human capital accumulation, but that different structural ratios within human capital can lead to different growth processes, and that optimizing the temporal allocation of human capital can continue to drive both human capital growth and economic growth. Hence, human capital accumulation is the product of individual time allocation: varied time allocations result in varying quantities of human capital and varying human capital accumulation efficiency. In other words, the actual contribution of human capital to economic growth depends on both the level of its components and the efficiency with which they are allocated. In the context of human capital's temporal allocation, the importance of vacation time is frequently overlooked.

This paper contends, based on the preceding debate, that the earlier research has been prepared for numerous components of human capital, but approaches the building of human capital outside of work and education as an exogenous "black box," a work-leisure treatment. The accumulation of learning through non-work time (leisure time) and informal education has become an increasingly vital source of inventive resources and human capital as economies transition to "post-industrial societies" where personalized living is the primary focus. Therefore, the paper suggests that human capital should be reconstructed as follows: education, on-the-job training and work experience, health, and leisure time. This new composition of human capital is also consistent with contemporary notions of "quality education," "happy

education," and "humanistic management." In comparison to the previous literature, this paper's three most significant advancements are as follows: First, it expands the meaning of traditional human capital by considering the accumulation of learning characterized by leisure time as the fourth dimension of human capital sources; second, it develops a model of human capital accumulation based on time allocation theory, which views human capital accumulation as the result of the allocation of an individual's time among various activities. Lastly, based on the research of Eden (2016), this paper create a holiday dispersion index to assess the concentration of holidays to characterize the quality of leisure, and use international economic panel data from year 2018 to 2020 to test the association between holiday structure and economic growth. The document is structured as follows: The first section is the introduction, which presents the research questions and main ideas of the paper; the second section is the literature review; the third section is the empirical analysis, which uses international cross-border data to verify international empirical facts on the role of human capital accumulated by introducing leisure time learning in economic growth; the fourth section is the discussion; and and at last, the conclusion and recommendations.

2. Literature Review: Holiday Time and Economic Development

2.1. Challenges to the traditional human capital theory

Scholars from around the world are focusing more and more on human capital as a significant input factor. As with physical capital, the goal of human capital investment is to maximize macroeconomic growth (Schultz, 1961) and micro profits. Human capital encompasses a growing number of components (Coleman, 1988; Heckman & Rubinstein, 2001, Čadil et al., 2014), education, training, and health are still regarded as the most essential elements of traditional human capital by academics (Becker & Tomes, 1986; Leslie, 1987). As socioeconomic progress proceeds, however, these traditional human capital theories have substantial limits in understanding economic reality, particularly in "post-industrial society" (Phelps, 1972; Fairlie & Robb A, 2007). This is due to the fact that traditional human capital theory has overemphasized the role of cognitive abilities such as education and training, while ignoring the role of non-cognitive abilities such as responsibility, self-esteem, social skills, self-control, loyalty, creativity and other dispositions and preferences in human capital. Furthermore, studies have shown that for low-skilled workers, non-cognitive abilities have a significantly greater impact on their wages and job stability. It is considered that non-cognitive abilities are the primary variables that impact and even determine a large number of genuine economic difficulties " (Coleman, 1988; Heckman & Rubinstein, 2001; Čadil et al., 2014).

2.2. The role of leisure time learning on human capital

The traditional concept of leisure time is that it is a substitute for work and study. Yet, as socioeconomic growth develops, it is becoming evident that leisure is not distinct from work and study, and that leisure is equally productive as it has the potential to generate new human capital (Hendee, 1971). In other words, leisure time contributes equally to human capital as education and on-the-job training, particularly in the non-cognitive dimensions of human capital (Beatty & Torbert, 2003).

Leisure and work contribute equally to human capital (Chris, 2000), and its effect can be summed up as follows: initially, leisure activities not only reduce job strain, but also improve physical strength and morale, consequently enhancing individual productivity and performance.

At this level, there is a complementary relationship between leisure and work (Walsh, 1982; Spreitzer & Snyder, 1987; Kirchmeyer, 1992; Snir & Harpaz, 2002). Even if leisure does not have an additional beneficial effect on human capital, it can at least alleviate the loss of efficiency caused by job strain (Cropley & Lynne, 2003), which helps to the accumulation of human capital, consequently, to an increase in labor productivity.

Secondly, learning during leisure time can contribute to the accumulation of human capital in terms of exogenous factors such as intelligence, social competence, knowledge, and health. This is due to the fact that people can significantly improve their mental and behavioral skills through daily leisure activities and health activities such as sports (Wei, 2005; Bloom et al., 2000), as well as increasing their social interaction and cooperation skills (Monte, 2008; Rooth, 2011), which are more beneficial to their physical and mental health (Pearson, 1998; Pagano et al., 2006; Ohta et al., 2007; Maguire, 2008) and even affects their body image and temperament (Toni & Yarnal 2010), thereby delaying the effects of ageing (Cherkas et al., 2008), all of which are important externalizations of human capital.

Thirdly, learning during leisure time might lead to implicit increases in personality skills and emotional levels. This is due to the fact that leisure activities such as companionship, travel, fitness, and the development of non-occupational hobbies enable individuals to attain and even grow their leisure satisfaction and well-being (Galit, 2007; Miao et al., 2011). In other words, leisure activities can make people happier, and this happiness can significantly increase the intrinsic benefits and rewards of their work productivity (Walker et al., 2005), thereby bringing more positive interests and well-being experiences, as well as continuously improving self-identity and promoting harmonious human development, thereby enabling people to seek a meaningful life, eliminate evil, and improve themselves (Iwasaki, 2007). In human capital, these implicit features are also significant representations of non-cognitive qualities that have been neglected.

2.3. Leisure time allocation and human capital accumulation

First, the building of human capital is the outcome of time allocation. For the source and development of cognitive and non-cognitive abilities of human capital, if cognitive abilities are derived from conscious actions such as formal education and training, then non-cognitive abilities such as personality and preferences are primarily derived from the connotation of life, which is primarily dependent on the individual's daily lifestyle and leisure behaviors during leisure time (Wei, 2015). In turn, leisure activities such as physical activity, travel, and socializing in leisure time have an ongoing impact on human capital skills such as health, determination, knowledge, accountability, and originality (Cao, 2007).

Second, leisure time allocation and holiday time concentration also affect efficiency through human capital, the concentration of holiday structure can constantly adjust the individual's work fatigue, the intensity and quality of learning at school, work and leisure time and other comprehensive human capital elements, thereby having some influence on work efficiency and economic growth, for example, Eden (2016) based on endogenous labour productivity and the marginal utility of leisure hypothesis proposes that optimal economic welfare can be achieved with a time allocation of 2-3 days of work and 1 day of day off. By devoting more time to healthy and energetic leisure activities, people could expand their mental and volitional endowment, which helps formulating human capital (Wei & Yu, 2011). In addition, enjoying leisure time has a specific external consequence, which is that leisure activities boost the innovation and technology level of society as a whole by fostering individual initiative and creativity. Individuals are able to influence the rate of accumulation of human capital through their leisure behavior and time allocation, which effectively drives economic growth. In the

current era, the formation of integrated skills demands not only formal learning and on-the-job training to improve cognitive abilities, but also informal learning - leisure time learning - to foster non-cognitive abilities in terms of responsibility and creativity. In order to improve and enrich human capital theory, and also to contribute to the transformation and upgrading of "industrialized society" to "post-industrialized society" and the economic development of the economy, this paper begins with the allocation of leisure time and then investigates the role of "learning through playing" on human capital accumulation. In addition, it provides theoretical support for the change and upgrading of the "industrialized society" to the "post-industrialized society" and the sustainable and high-quality economic growth.

3. Empirical Analysis

3.1. Research design

3.1.1. Data description

To examine the effect of time allocation on the growth rate of GDP per capita, 132 nations covered by the World Development Report 2021 were chosen as the data base, and the remaining 6 OECD countries were selected as extra samples, for a total of 138 survey samples. To verify the integrity and authenticity of the data, all economic data in this article are collected from the World Bank database, and the data on the concentration of holiday structure reflecting time allocation are calculated based on government-provided vacation policies.

3.1.2. Selection of variables

In this paper, the explanatory variable is the GDP per capita growth rate, and the primary explanatory variable is the new human capital, which includes the leisure time factor. To overcome the constraints of the education surveys have been conducted in assessing human capital and the limited explanatory power of the traditional human capital theory, this paper attempts to identify new human capital indicator variables by reconstructing the human capital component dimensions. This paper uses the number of years of schooling per capita as a measure for the education dimension of human capital: Yao & Cui (2015) found that men's human capital utilization rate is significantly higher than women's, confirming Barro & Lee's (1994) finding that the coefficient of women's educational attainment on economic growth is essentially zero. Barro (1997) argues that the educational attainment of the population over the age of 25 has more explanatory power than the educational attainment of the population over the age of 15; the health dimension of human capital is characterized by the life expectancy of each country; and the leisure time dimension of the new human capital is represented by the quality of leisure time.

Commonly, measures of leisure quality include two dimensions: the number of vacation days and leisure activities. Due to the absence of cross-country comparable data on leisure activities, this paper uses Eden's (2016) research on the ideal arrangement of working days and rest days to develop a proxy variable that can characterize the quality of leisure. According to the findings of Eden's (2016) study, both excessively lengthy working days and rest days are detrimental to individual performance, such that a rest day after 2-3 days of work is more beneficial than a rest day after 5 days of work. This paper suggests that a widely distributed holiday schedule is more effective at enhancing individual productivity than a centralized holiday schedule. Therefore, this paper constructs the holiday dispersion index X_{it} , which reflects the frequency

and intensity of "concentrated holidays" of residents in country i in year t , as following expression:

$$\text{Holiday Dispersion Index : } X_{it} = \frac{\sum_{n=1}^{365} M_{itn}}{N_{it}}$$

Where N_{it} is the total number of holidays in country i in year t (including weekends) and M_{itn} is the holiday score for each day in country i , if the day before or after day n is a holiday, $M_{itn} = 1$; if both the day before and the day after day n are holidays, $M_{itn} = 2$; otherwise, $M_{itn} = 0$. The design of the holiday dispersion index reveals that a greater the value of X_{it} , the more concentrated the holiday and the poorer the quality of leisure; conversely, the smaller the value of X_{it} , the more dispersed the holiday schedule and the higher the quality of leisure. As a result, when the amount of holidays is fixed, this paper use the holiday dispersion index X_{it} to characterize the quality of leisure time learning in human capital.

As in Barro (1997), the control variables are expressed in terms of factor endowment, government consumption (besides, terms of trade, inflation, and birth rate, in which factor endowment is measured by the country's initial GDP level, government expenditure as non-productive consumption, expressed as a share of GDP in the country's current year government expenditure (excluding defence and education) and terms of trade expressed as a percentage of the country's GDP in that year. In accordance with prior research, the consumer price index (CPI) released by the World Bank is used to measure inflation, while the birth rate is utilized to determine a country's potential new labor supply. The initial GDP level, birth rate, and life expectancy data are treated logarithmically in order to lower the scale's magnitude. Table 1 displays the descriptive analysis of the variables.

Table 1: Descriptive Analysis

Variable	Lable	N	Mean	Std. Deviation	Min	Max
g_t	GDP per capita growth rate	315	2.92	4.25	- 22.23	25.11
Log (GDP)	Initial factor endowment	315	24.45	2.14	18.72	30.34
Govncon	Government expenditure	296	23.82	11.41	1.92	62.31
Trade	Term of trade	315	107.33	29.35	21.40	314.10
Holidays	Number of holidays	243	113.38	3.53	104	138
X_{it}	Holiday dispersion index	243	1.02	0.038	0.89	1.12
Hedu	Educational attainment, at least Bachelor's or equivalent, population 25+, male	275	0.54	0.39	0.02	1.91
Edu	Year of schooling, 25+, male	275	7.29	1.70	1.38	13.42
Inflation	Inflation	315	23.85	150.68	- 29.69	2630.12
Log (br)	Log (birth rate)	315	2.93	0.55	2.05	3.95
Health_	Log (life expectancy)	315	4.23	0.16	3.58	4.43

Source: Author

3.1.3. Estimate method

The traditional ordinary least squares estimation method (OLS) is chosen to assess the stability of the findings regarding the impact of new human capital from leisure time learning on cross-country economic growth, and the estimation equation constructed on the basis of the mathematical analysis is as follows:

$$g_{yit} = \alpha + \beta X_{it} + \gamma Edu_{it} + \upsilon Health_{it} + \delta Control_{it} + \varepsilon_{it},$$

where g_{yit} is the current year's GDP per capita growth rate of a country, X_{it} is a measure of human human capital in terms of leisure time learning quality, and Edu_{it} is a measure for human capital in terms of education. $Health_{it}$ is the national average life expectancy used to evaluate the health aspect of human capital; $Control_{it}$ is a set of control variables that affect cross-country economic growth, such as factor endowment, government consumption, terms of trade, inflation, and birth rate.

3.2. Benchmark regression analysis

According to the results of the benchmark regressions, the effect of the basic explanatory variable X_{it} , which assesses the quality of leisure time learning, on GDP per capita growth was verified, as was the influence of the core explanatory variables Edu and Health on GDP per capita growth. Also consistent with Barro (1997)'s findings are the negative impacts of the control variables initial factor endowment (Log(GDP)), government consumption (Govncon), inflation (Inflation), and birth rate (Log(br)) on economic growth. Notably, this paper does not support the positive influence of trade terms on economic growth, and the significance does not pass the 10% significance test.

Table 2: Benchmark regression analysis of the relationship between holiday concentration and GDP per capita growth

Variables	Pooled cross-sectional analysis	
	(1)	(2)
Log (GDP)	-0.2727259 ** (.1284352)	-0.3147779 ** (.1296048)
Govncon	-0.0738624 *** (.020964)	-0.0719134 *** (.0208963)
Trade	-0.000334 (.0074625)	0.0002163 (.0074354)
X_{it}	-6.19309 (5.265154)	-9.236245* (5.459675)
Edu	0.433818 ** (.1792026)	0.4532831** (.1786949)

Variables	Pooled cross-sectional analysis	
	(1)	(2)
Holidays		.1172483** (.0587507)
Inflation	-.0299054 *** (.0079114)	.029667 *** (.0078781)
Log (br)	-.7222136 (.7724058)	-.6513309 (.7698888)
Health	2.589148 (2.827193)	3.77223* (2.786668)
N	352	352
F	4.47	4.45
Prob > F	0.0000	0.0000

Note: Within () is the standard deviation of the estimated coefficients, *, ** and *** denote the 10%, 5% and 1% significance levels respectively, as below.

Source: Author

3.3. Analysis of impact mechanism

The consistent dampening effect of leisure time human capital on economic growth using the holiday dispersion index as a proxy variable has been verified, but the relationship between holiday structure and economic growth, as well as the mechanism for dampening economic growth, requires additional study. In order to examine the effect of holiday structure on economic growth, this paper separates countries into two groups based on the yearly mean value of the holiday dispersion index, $\text{Mean } X_{it} = 1.02$. Countries with a holiday structure greater than the mean value have a high dispersion, a more concentrated holiday regime, and a low quality of leisure time human capital accumulation; countries with a holiday structure less than the mean value have a low dispersion, a more decentralized and flat holiday regime, and a less concentrated holiday regime, and a low quality of leisure time human capital accumulation. Countries with a smaller dispersion of vacation structure have a more decentralized and flat holiday regime, as well as a greater quality of human capital accumulation during leisure time. Then, based on the categories of the holiday dispersion index, we analyze whether the education and health dimensions of human capital differ significantly.

Table 3: ANOVA analysis of years of schooling and life expectancy for nations with different holiday dispersion index

Variable	Years of schooling		Years of tertiary education		Average life expectancy	
	High dispersion	Low dispersion	High dispersion	Low dispersion	High dispersion	Low dispersion
Mean	5.38	5.42	0.49	0.57	68.8	70.6
T.	0.2533		1.9942		1.9948	
Sig.	0.8002		0.0467		0.0466	

Source: Author

The results in Table 3 show that among countries with different holiday dispersion indexes, countries with low holiday structure have significantly higher years of tertiary education than countries with high dispersion indexes, with 0.08 years more years of tertiary education; in terms of average life expectancy, countries with low holiday structure have significantly longer life expectancy than countries with high dispersion indexes, with 1.8 years more average life expectancy. Therefore, in order to explore the mechanisms and channels of impact holiday structure has on economic growth, the interaction terms $Health \times X_{it}$ and $Hedu \times X_{it}$ are added to the previous model respectively, the result is showed in Table 4.

Table 4: Analysis of impact holiday dispersion has on economic growth

Variables	(3)	(4)	(5)	(6)
X_{it}	-42.63402 (179.4014)	-56.83329 (178.7238)	-11.78165* (7.038535)	-11.38315* (7.045754)
Holidays		.1224035** (.0592211)		.0838624 (.0658001)
Health	13.61658* (6.71257)	18.97713*** (6.73148)	3.097629 (2.915685)	3.722807 (2.952441)
$Health \times X_{it}$	-11.2333 (42.10667)	-15.3115 (41.96182)		
Hedu	.3883485** (.1833782)	.4096049** (.1827922)	.4659928** (.197546)	.4820745** (.1976207)
$Hedu \times X_{it}$			-1.277648* (.7079572)	-.1716105* (.7027144)
Other control variables	Yes	Yes	Yes	Yes
N	194	194	194	194
Wald chi2 (9)	25.16	29.83	30.13	32.09

Variables	(3)	(4)	(5)	(6)
Prob > F	0.0028	0.0009	0.0015	0.0013

Source: Author

$\text{Health} \times X_{it}$, the interaction term between the dispersion index of holiday structure and life expectancy, indicates that a reasonable holiday regime can positively contribute to economic growth by increasing individuals' physical health and life expectancy. The interaction term $\text{Hedu} \times X_{it}$ indicates that a reasonable holiday structure not only improves the quality of human capital among individuals with a higher level of education, but also encourages individuals with a higher level of education to acquire new knowledge and skills during their leisure time, thereby contributing positively to economic growth. However, if the holiday structure is more concentrated, neither longer working hours nor breaks will reduce the quality of human capital in education and to the health of the individual, which impedes the individual's optimal performance, then it will have a negative effect. When the interaction term $\text{Health} \times X_{it}$ is added to the model to test the role of health, the coefficient on the interaction term is negative but fails the significance test, indicating that life expectancy is a less significant moderator of the economic growth-depressing effect of the holiday dispersion index. The inhibitory effect of the vacation structure dispersion index on economic growth passed the significance test after the interaction term $\text{Hedu} \times X_{it}$ was included to the model to test for the function of schooling. In addition, the moderating effect of education on holiday structure is more important than that of health, providing a theoretical basis for the emphasis on leisure time learning and leisure economies in nations with a higher education level.

4. Conclusion

The impact of the three components of the new human capital: education, health, and leisure time, on economic growth is examined independently. The paper concludes that holiday dispersion, a measure of leisure quality, has a significant negative effect on GDP per capita growth; in terms of education, the education attainment of males over age 25 has a significant positive effect on GDP per capita growth; and in terms of health, life expectancy has a significant positive effect on GDP per capita growth. Second, the mechanism of human capital formation during leisure time on economic growth is investigated. The cross-sectional relationship between holiday dispersion and education attainment has a significant negative effect on the growth rate of GDP per capita, indicating that leisure time human capital accumulation is moderated by education attainment. In conclusion, economic growth is more dependent on high-quality human capital and talent pools, and this paper offers following recommendations:

The first step is to lower the holiday concentration. As measured by the Holiday Dispersion Index, the greater the concentration of holidays, the lower the quality of leisure for its population. In addition, the negative effects of concentrated holidays, such as decreased travel experience quality, traffic congestion, and the "holiday syndrome" that happens at work following the holidays, also limit economic growth to some extent. Hence, a reduction in the concentration of holidays within the allocation of public holidays is advantageous for economic growth.

Second, the significance of leisure education. Leisure time as a vital component of the new human capital is as important as time spent on education, on-the-job training, and health. Active leisure activities such as fitness, sports, and socializing can not only promote stress relief and physical and mental health for individuals, but also help improve their non-cognitive abilities in terms of personality and preferences, such as responsibility, self-esteem, social skills, self-control, loyalty, and creativity, thereby contributing to long-term economic growth.

Third, the implementation of flexible work hours in the workplace. To be effective, the accumulation of human capital during leisure time requires not only a particular physical foundation and economic development circumstances, but also the assurance of free labor and time movement within the system. Thus, a flexible working system is implemented to provide employees with a more adaptable work schedule. Workers are allowed to allocate their time in accordance with their individual deficiencies and improvement needs, so as to maximize the quality of their human capital while completing work duties. Therefore, flexible working also assists people in achieving a healthy work-life balance and enhances national life and job satisfaction.

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