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Varazdin Development and Entrepreneurship Agency and **Heriot-Watt University**
in cooperation with
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University North
Faculty of Management University of Warsaw
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat
ENCGT - Ecole Nationale de Commerce et de Gestion de Tanger - Abdelmalek Essaadi University
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Economic and Social Development

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CONTENTS

SMART TOURISM TECHNOLOGY USAGE – THE SUPPLY AND THE DEMAND PERSPECTIVE

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ABSTRACT

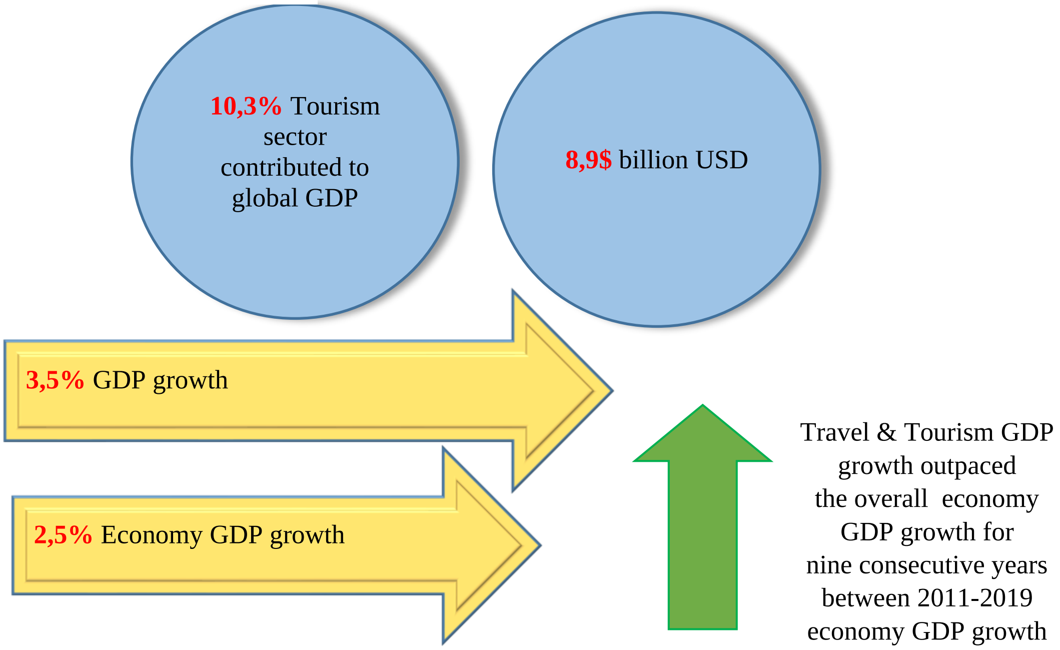
Trends in the tourism market show that visitors' preferences have changed and that the availability of technology during the trip has become very important. Suppliers have started to adapt to this by offering visitors a complete travel experience through content available through the use of smart technology. This type of guest engagement is very competitive in the tourism market. Researchers have therefore started to explore this segment in more detail and develop a new concept - Smart Tourism Technology. It includes a number of segments in a destination, such as radio frequency identification, augmented reality, mixed reality, Wi-Fi, accessible GPS and a like. This paper investigates which types of smart tourism technologies are used by destinations and which of these technologies are used by tourists during their stay in the destination. Two studies were conducted. The first study was conducted on a sample of Tourism Boards and the second study was conducted on a sample of tourists in the destination. The results show that most destination tourism management authorities (tourist boards or DMOs) use social media and platforms, Internet, short-range wireless communication technology, virtual reality and cloud computing. Research among tourists has shown that smart technologies are most commonly used to enhance the personal travel experience and post travel photos. For that purpose, they are mostly prone to using geolocation apps, free Wi-Fi, and smart technologies (e.g. smartphone, sensors, artificial intelligence, Big Data) in general.

Keywords: *Tourism Destination, Smart Tourism Technology, Destination Management Organization (DMO), Tourism Board, Tourists*

1. THE IMPORTANCE OF TOURISM

Tourism has always been in function development for countries. It is a major driver of natural and anthropogenic resources, cultural resources, traditions and local customs, connecting people around the world, bringing real income and contributing directly to GDP growth and employment. Tourism is not only a driver of local and regional economies, but also a catalyst for all sectors of activity with which tourism businesses come into direct or indirect contact. The economic, social and environmental performance of tourism is a consequence and stimulus for the entire local, regional and global economy. Travel and tourism is one of the largest sectors in the world that drives socio-economic development and plays an important role in the prosperity of destinations and empowerment of women, youth and other social groups.

The benefits of travel and tourism sector exceed the direct impacts in terms of GDP and employment, and are reflected in the indirect benefits resulting from supply chain linkages with other sectors and their induced impacts. Tourism contributes 10.3% or $8.9 trillion to global GDP each year. Continued growth in the number of middle-class households, low unemployment rates, and the easing of visa restrictions in many countries around the world enabled tourism to grow GDP by 3.5% in 2019, a higher growth rate than overall global GDP growth for the ninth consecutive year (WTTC, World Travel and Tourism Council, 2020). One in ten jobs is related to the tourism sector and tourism accounts for a quarter of new jobs generated in the last five years (WTTC 2020).



Picture 1: The share of tourism in GDP globally in 2019
(Source: World Travel and Tourism Council (2020). Global Economic Impact & Trends, https://wttc.org/Research/Economic-Impact, p. 1.)

According to the UNWTO (2014) report, 1.4 billion international tourist arrivals are projected for 2020. But in today's world, faced with the Covid-19 pandemic and more uncertainty it is difficult to make longer term predictions. There is dynamic progress of technology, medicine and information availability. Artificial intelligence is becoming more developed, leading to enhanced personalization of the tourist offer and therefore becoming one of the most important factors of tourism destination choice. In addition, informatization has led to better informed tourists, that are more demanding and constantly looking for new and improved experiences to which the tourist offer needs to adapt to. Thanks to the transportation infrastructure improvements and the informatization, more tourist destinations are either emerging either improving. The listed describes the circumstances of tourist offer development in line with the rising demand for diversity and quality improvements in order to keep the existing guests and to attract the new ones.

2. SMART TOURISM TECHNOLOGY

Information and communication technologies (ICTs) are the most dynamic drivers and enablers of globalization processes and the world economy, as well as tourism. The application of new technologies and ICT solutions contributes to systematic innovation and monitoring and adaptation to modern trends and individualized requirements in tourism.

Existing software solutions and applications are being systematically developed and updated, and new ones are being added all the time (Horvati & Bačić 2013). In the last twenty years, with the development of technology, the development of tourism has changed a lot. Some authors (Buonincontri, Micera, 2016; Liberato, Alen, Liberato, 2018) concluded that tourism can achieve its progress through the use of technology, that is, its development largely depends on ICT (Law et al. 2014; Benckendorff et al. 2014; Gretzel, Sigala, Xiang, Koo, 2015). Aside economic growth, tourism development affects social and environmental prosperity. Continuous innovation capability contributes significantly to the destination's competitiveness in the market (Ezeala-Harrison, 1999), and the use of technology to introduce innovative tourism services is not uncommon. Some authors (Neuhofer et al., 2012) have already confirmed in their research that the competitiveness of a destination is more important when the visitor and the destination offer are connected with the help of technology. Ali, Frew (2014) state that the Internet has significantly changed the way information is collected, stored, distributed, processed and managed in tourism. Buhalis, O'Connor (2005) emphasize the particular importance of the Internet for destinations, noting that the Internet serves as a mechanism for new distribution channels for destinations and increases communication and interaction with and among stakeholders. The academic research of tourism also demonstrates an interest in studying the factors that make a destination competitive (Bakıcı, Almirall, Wareham, 2013). Del Vecchio, Ndou, Passiante (2015) concluded that information and communication technology has reshaped the demand, but also access to guests (supply). Smart tourism technology encompasses a number of segments. These include: uninterrupted use of free Internet access (Wi-Fi), mobile applications that allow independent visitation of the destination (Google Maps, TripAdvisor, but also applications specific to the destination visited), mobile applications for other services such as parking, purchasing bus and subway tickets through the touch screen, and more. The literature on tourism experiences shows that the competitiveness of a destination increases when there is interaction between tourists and the destination's offer through the use of new technologies (Neuhofer et al., 2012; Gračan et al., 2021). Woo Yoo, Goo, Huang, Nam, and Woo (2016) investigated the support of smart tourism technologies in choosing a destination. They concluded that the quality of information, credibility of sources, interactivity and availability through such technology significantly influence satisfaction with this support when planning a trip. Smart tourism technologies in this study refer to any form of information technology that tourists interact with to search for information, conduct transactions, communicate, and create content. Xiang et al. (2015) pointed out that the use of technologies for booking accommodation, purchasing airline tickets and renting various modes of transportation has reached a certain level of maturity and that it is necessary to monitor their development in other tourism services. Rabanser and Ricci (2005) confirmed that tourists have become more demanding and that, due to better communication, it is necessary to contact them through social networks and other information and communication channels. Looking at the literature, the most common form of using smart tourism technology is the mobile application because there are a number of services that can be covered by it. Young Im and Hancer (2014) studied the impact of different segments (ease of use, personality, perceived enjoyment, personal attitude, perceived usefulness) on mobile applications in tourism. They concluded that usability is positively related to all other segments listed. They point out that it is important for the user to be able to use the travel application effortlessly, especially since the researched mobile applications are used for pleasure - to travel. Kennedy-Eden and Gretzel (2012) stated that the content and interface of mobile applications significantly affect travel planning. Authors Rivera, Gregory, and Cobos (2016) examined the influence of technology use experience on attitude, perceived usefulness, and intention to use smart technology in the future.

They concluded that the experience of using the technology influences the intention to use it during the trip and that this is mediated by perceived usefulness and attitude toward the technology.

3. RESEARCH

As part of The Centre of Competence for Smart Cities (CEKOM) project, a research on the concept of spatial management in the context of destination management and movement of citizens and tourists was conducted on a sample of Destination Management Organizations – i.e. Tourist Boards in Primorje-Gorski Kotar County in the summer of 2021. Based on this general research focus, the following specific research objectives were set: 1) to determine what types of smart tourism technologies are used by tourism authorities locally and regionally, 2) to identify information sources used by Tourism Boards when planning tourism development and, 3) to identify the impact of globalization on the tourism seasonality. The research was conducted using a mixed method of field survey (Computer-assisted personal interviews - CAPI) and online survey (Computer-assisted web interviewing - CAWI), in order to reach the targeted groups and encourage better response rate. The questions were open, closed and the possibility of multiple answers.

3.1. Destination Management Organizations sample

A total of 25 destination management organizations (tourism boards) out of 31 in Primorje-Gorski Kotar County were surveyed, 16 of them by using the field survey method and 9 using the online survey method. The respondents were required to be from top management level.

Research area	Islands	9
	Coast	15
	Mountainous area	1
Gender of respondents	Male	8
	Female	17
Age of respondents	25-34	1
	35-44	5
	45-54	6
	55-64	4
	No answer	9
In total		**25**

Table 1: Sample structure
(Source: author's research)

In total 9 city Tourist Boards, 13 municipal Tourist Boards, two regional, and one local participated in the study. Of these 25, 15 are from the coastal part of the County, 9 from the islands and 1 from mountain part of the County. Out of 25 tourist boards, 52% (13) tourist boards do not have a higher-level, umbrella organization for tourism management that integrates the local level organizations. Out of the sample, 7 tourist organizations are under the umbrella of the Kvarner Tourist Board and 5 integrated in the Krk Island Tourist Board. 56% (14) of destination management organizations in Primorje-Gorski Kotar County state that they have a sustainable tourism strategy. For some, it is a part of the general Tourism Development Strategy and for some a part of the Tourism Development Action Plan. In total, It seem discouraging that 44% (11) destination management organization directors do not even know if there is a sustainable tourism strategy set for the destination they are managing. The most common method to obtain a tourism development strategy is to adopt an overarching strategy from a higher level tourism authority, which 44% Tourist Boards do.

An equal share - 24% (6) of Tourism Boards indicate that their strategy is mandated by the municipality or city, as well as the 24% (6) Tourist Boards that indicate that the strategy is mandated by the Tourist Board itself. Only one Tourist Board included in this study actually developed their strategy on their own. After all, 84% (21) tourist boards in Primorje – Gorski kotar County do not have a strategy of smart technologies implementation. Only a few (precisely 16% (4)) were able to specify on projects or documents on smart technology implementation. Out of these four tourist boards, 75% (3) believe that the implementation of this strategy will change the way their destination operates. As for the smart technology implementation, most Tourist Boards (92%) use social media and/or online communication platforms. 60% use the Internet, and between 24-32% use short-range wireless communication technology, virtual reality or cloud computing (Figure 1).

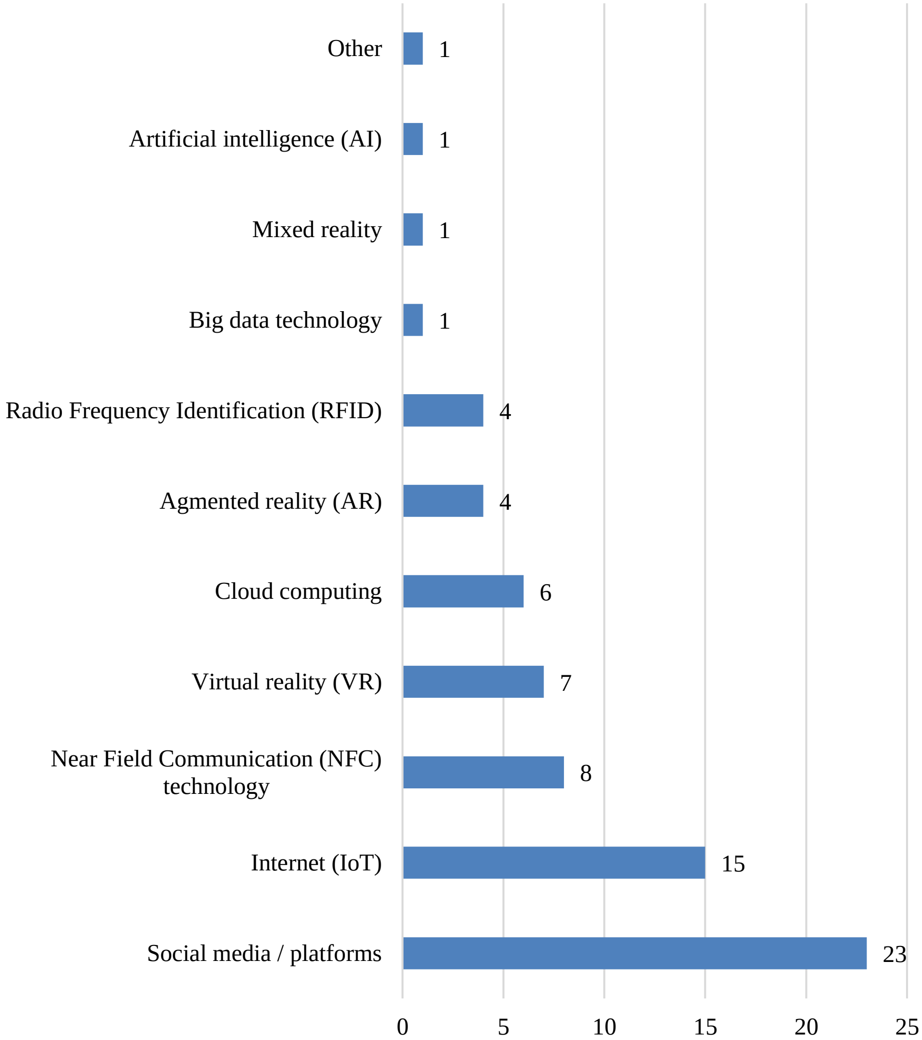


Figure 1: Use of smart tourism technologies by Tourism Boards (%)
(Source: author's research)

The eVisitor, Tourist Board's, Croatian National Tourist Board and the Ministry of Tourism and Sport are the most commonly used data sources for day-to-day operations and short-term decision making (Figure 2). Aside the already mentioned, historical data and statistics are used for annual planning and forecasts, and for strategic planning and development national development strategies are also used.

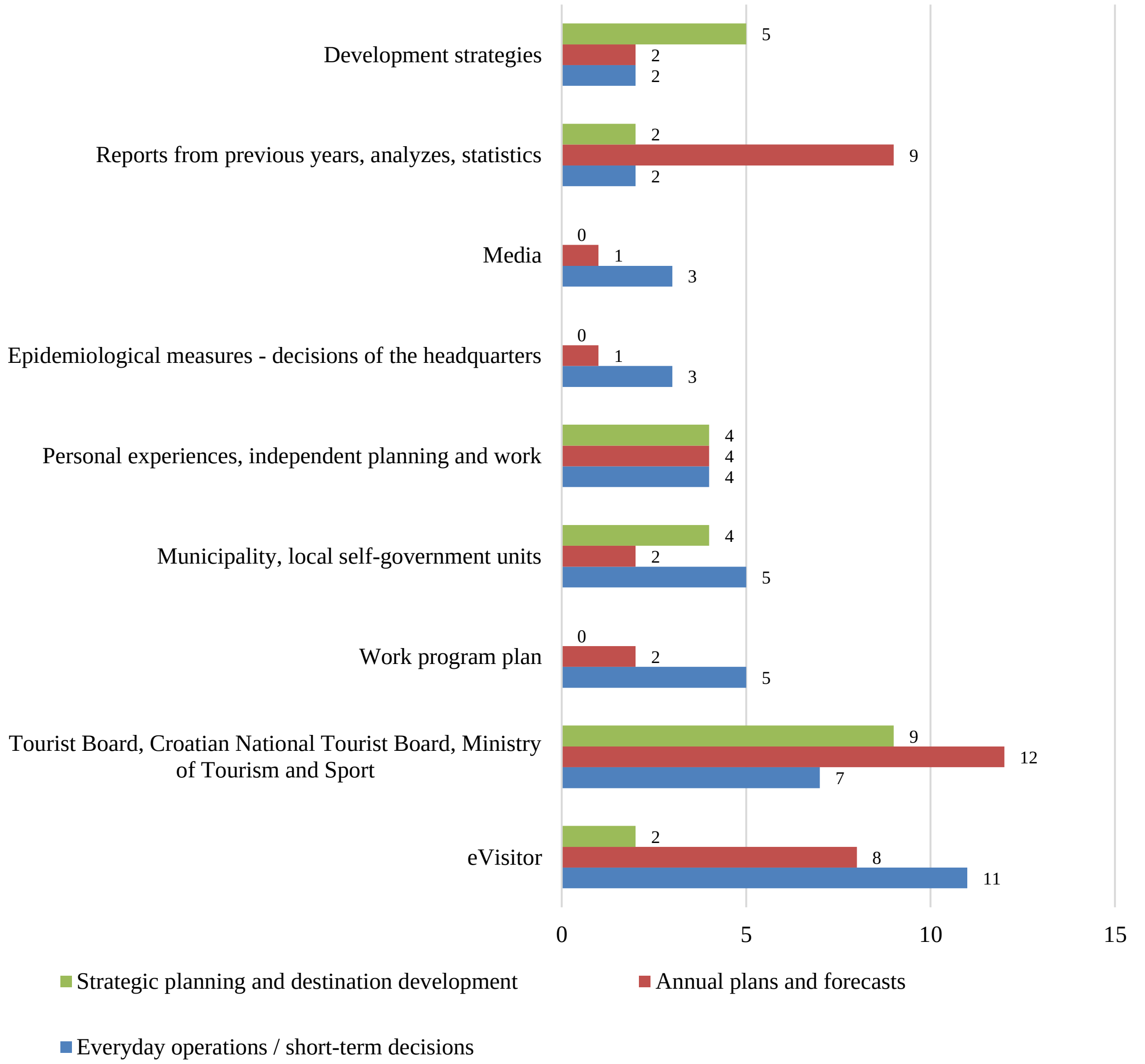


Figure 2: Sources used by Tourism Boards when planning tourism development (Source: author's research)

Most Tourism Boards track the information about the visitor satisfaction, their suggestions, and arrival motivation. More precisely:

- 72% (18) monitors the satisfaction of visitors,
- 76% (19) systematically collects suggestions and recommendations from visitors regarding satisfaction with the destination experience,
- 88% (22) monitors information about the motives for the arrival of visitors,
- 80% (20) monitors whether tourists return to the destination, and 17 monitors the reasons why tourists return,
- 44% (11) monitors the number of day visitors or day trippers to the destination.

The destination tourism management representatives expressed awareness of the tourist season and its course being influenced by globalization (Table 2), and consider it to be most evident indirectly - in the quality, content and ecological aspects of tourist stay at the destination, as well as in well thought out sustainable, long-term business planning and the deriving socio-economic benefits.

The impacts of globalization and the emerging trends	Average (Likert 1 “completely disagree” to 5 “completely agree”)
Using the online portals enabled the additional offer	4,7
With the development of smart technologies, there is the potential for faster and easier ability to compare and track comparison and tracking of offers but individual guests "from the street" are missing	4,5
The later start of the tourism season (due to pandemic COVID-19 pandemic) led to delayed booking delays in all accommodation facilities	4,3
The later start of the tourism season (due to COVID-19 pandemic) led to a shift in demand, and larger crowds began in mid-July	3,9
Large crowds (on roads, in shops, at beaches, at parking lots, etc.) on weekends and holidays affected the overall quality of the destination	3,2
With the development of smart technologies, there is faster and easier ability to compare and track offers but individual guests "from the street" were absent	4,5
By using the online portal, an additional offer is enabled	4,7
The later start of the tourism season (COVID-19 pandemic) led to a shift in demand, and larger crowds began in mid-July	3,9
The later start of the tourism season (pandemic COVID-19) led to delayed booking in all accommodation facilities	4,3
Large crowds (roads, shops, beaches, parking lots) on weekends and holidays affected the quality of the destination	3,2

Table 2: The impact of globalization on the tourist season
(Source: author's research)

The destination tourism management representatives consider the impact of new trends and market demands to be the most evident in the additional offer of tourism services, due to the use of online portals, but also in the fact that due to smart technologies the individual guests "from the street" are missing.

3.2. Visitor survey

The second survey within the project was conducted using the method of personal interview (Computer-assisted personal interviews - CAPI). A total of 707 visitors to Primorje-Gorski Kotar County were interviewed in the period from July 10th to September 11th 2021, to determine the validity of forecasting models to support decision-making on a sample of visitors to Primorje-Gorski Kotar County. Total of 53% of the population were from island destinations, 45% were interviewed in coastal destinations, while 2% of the respondents were interviewed in Gorski Kotar. 54% of respondents were men, 46% were women, half of the sample were foreign tourists and half were domestic. 40% of the visitors were on a day trip, and 60% of them had at least one overnight stay included in their stay. For the purposes of this paper an extraction of variables focused on the forms of behavior and the use of smart technologies during holidays was made.

Statements "During my holidays…."	**Average (Likert 1 "completely disagree" to 5 "completely agree")**		
	Total	**Male**	**Female**
…I tend to use smart technologies (e.g. smartphone, sensors, artificial intelligence, Big Data)	**3,3**	3,2	3,5
…I use free Wi-Fi	**3,5**	3,4	3,5
…I use QR codes	**2,9**	2,8	3
…I use NFC / RFID tags	**2,4**	2,4	2,5
…I use geolocation applications	**3,6**	3,5	3,6
…I use AR-VR applications (augmented & virtual reality)	**2,3**	2,3	2,3
…I think the use of smart technologies is very useful in creating the desired experience	**3,6**	3,5	3,7
…I use smart technologies only if I can benefit from it (I get something in return)	**3,2**	3,3	3,2
…I tend to interact with other tourists who share the same experience in the destination (e.g. my hotel's Twitter community)	**2,7**	2,7	2,8
…I consider my mobile device / smartphone and the use of social media to be part of my unique / "smart" experience	**3,4**	3,3	3,5
…I feel I have control over my own experience	**3,8**	3,7	3,9
…I am concerned about privacy / security issues of sharing personal information and preference data	**3,4**	3,4	3,4
…I think that all personal information about data about my preferences should be used (collected and processed) only with my consent	**4**	4	4,1

Table 3: The level of agreement with the claims about the use of smart technologies (Source: author's research)

Respondents' agreement with claims about the use of smart technologies is higher for statements on safety and control over one's experience and generally lower for statements suggesting the use of specific technologies (especially such as AR-VR applications, NFC / RFID tags, Twitter communities, QR codes, etc.). People under 35 and students are generally more open to using smart technologies, while people over 55 and especially retirees are less likely to use smart technologies while in a destination. In general, tourists' use of smart technologies is most commonly in function of enhancing the personal travel experience and to post travel photos. Women under 34 years and students are the sample segments that use smart technologies most frequently. On the other hand, male tourists, tourists over 45 years old, and retirees are less likely to use smart technologies.

4. CONCLUSION

Although its actual value is difficult to determine precisely, the economic potential of tourism is beyond question. It is precisely because of its positive economic impact that most destinations want to be mapped on the global tourism map. Employment, foreign exchange, imports and taxes are just a few of the ways tourism can contribute to a destination's economic benefits. Year by year, the world is seeing an increase in tourist travel and, in parallel, the share of GDP in overall economic growth, both at the global level and in the Republic of Croatia. Competitiveness becomes more and more important when the world 'stops', borders close and tourism stops. Then the importance of technology and timely information about the offer, but also the safety of the destination gets the right importance. With restrictive measures and a slow but safe opening of borders, tourists choose their holiday destination carefully. An upturn and a 'new' start for tourism is possible if the offer is adapted to the more and more demanding tourist, respecting his characteristics and meeting the growing expectations. The key to success lies in identifying needs and designing services to create loyalty and increase tourist satisfaction.

Technological advances have changed the way we travel and will continue to do so, and new advertising channels will provide an even more interactive and exciting experience. Smart technology is becoming more and more interwoven with daily life, and the fact is that this is the future that will be indispensable for both providers and users of tourism services. It is a fact that more and more tourism destinations are advertising their services on the Internet, especially on social networks. Research has shown that the younger generation is more inclined to use smart technology while on holiday, especially to post pictures on social media. Smart technology is becoming more and more interwoven with daily life, and the fact is that this is the future that will be indispensable for both providers and users of tourism services. This research has shown what is the Smart Tourism Technology use that destination management organizations are inclined to. It has also put it in relation to tourist behaviour in relation with Smart Tourism Technologies while travelling, or more precisely, while in destination.

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WHAT DRIVES LEVELS OF CO2 EMISSIONS – INTERNATIONAL COMPARISON BASED ON BROADEN KAYA IDENTITY

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ABSTRACT

Carbon dioxide is the major accelerator of the greenhouse effect in the atmosphere, thus its impact on environmental quality is enormous. Both, IPAT identity (estimates society's impact on the environment) and Kaya identity (evaluates CO2 emissions as the product of several key factors) present relevant components in formulating various environmental (un)sustainability scenarios. By focusing on established industrial practices, many countries have destroyed their environment, they have harmed their own, and thus the global ecosystem. Therefore, the main challenge for a long-term sustainable economic policy is a simultaneous focus on two goals, economic growth and environmental preservation. Environmental efficiency (less environmental impact per unit of GDP) plays the most important role and has the potential to break the link between economic growth and environmental impact. In that way, the growth may continue as the function of the so-called green growth. The objective of this paper is to evaluate the implications of, broaden and economically more labelled, Kaya identity in order to understand how the factors of influence have changed over time. In addition, by linking the impact of distinct categories of energy intensity within the broaden formula, we will emphasize an even greater role of cleaner energy sources for CO2 diminution. Empirical analysis is based on a panel cointegration approach for the period 2007-2019 for the sample of 37 European countries. The results suggest that all identified factors will continue to be important topics within the discussions on global 'green growth' policy decisions.

Keywords: *green growth, CO_2, energy intensity, carbon footprint, panel cointegration approach, European countries*

1. INTRODUCTION

The reduction of CO2 emission is in the focus of the EU policies intensively highlighted with the Europe 2020 strategy, followed with the European Green Deal as one of the six priorities of European Commission for the 2019-2024 period (European Commission, 2022). The countries are facing the tradeoff between promoting high growth rates of their economies and creating and implementing numerous activities towards environment protection. The EU through the flagship initiative (in the framework of the strategy Europe 2020) promotes decoupling the economic growth from the use of resources. In other words, economic growth should be achieved with the lower level of environment pollution. The year 2021 has been nominally the sixth warmest year on Earth since 1850 as 2015, 2018, and 2021 are essentially tied as the fifth, sixth, and the seventh warmest years. The seven warmest years in the record, all occurred in the past seven years (Rohde, 2022). Carbon dioxide (CO_2) is the major accelerator of the greenhouse effect in the atmosphere, thus its impact on environmental quality is enormous.

Though many economic practitioners claim that the experiences of green growth policies have not yielded promising results for ecological modernization requires a change in perception of demographics, economics, institutions and technology, it does not mean that we should stop studying and/or impelling the relevance of our anthropogenic activities. Further understanding of ecological transition, climate drift and sustainable growth entail not only a thorough review of the current economic system, but also a continuous discussion of global climate policy decisions. Problems of possible decoupling of gross domestic product (GDP) from consumption of natural resources and/or decoupling GDP from environmental impact, absolute vs. relative decoupling, total vs. partial decoupling, energy intensity vs. carbon intensity and etc. are becoming fundamentally important in illustrating natural changes in a statistical manner. For example, 'famous equations' known as the IPAT identity (estimates society's impact on the environment) and the Kaya identity (evaluates CO_2 emissions as the product of several key factors) present relevant components in formulating various environmental (un)sustainability scenarios. A sizeable segment of the existing literature on population and environment has attempted to clarify the intricacies of the theoretical nexus between environmental change and a restricted list of variables such as technology, population size, characteristics, and growth, consumption levels and patterns (Martine, 2005), however we are aware that the inter-relationship between many socio-economic variables are much more complex that the suggested equations. By focusing on established industrial practices, many countries have destroyed their environment, they have harmed their own, and thus the global ecosystem. Therefore, the main challenge for a long-term sustainable economic policy is a simultaneous focus on two goals, economic growth and environmental preservation. Environmental efficiency (less environmental impact per unit of GDP) plays the most important role and has the potential to break the link between economic growth and environmental impact. In that way, the growth may continue as the function of the so-called green growth (Škare, Tomić and Stjepanović, 2020). The main goal of this study is to evaluate the implications of, broaden and more analytical, Kaya identity in order to understand how the factors of influence have changed over time. By revitalising standard relationships with an ecosystem, this technical identity allows us to evaluate collective responsibility in regard to CO_2 emissions related to human actions and economic activity. In addition, by linking the impact of distinct categories of energy intensity within the broaden formula, we will emphasize an even greater role of cleaner energy sources for CO_2 diminution. Empirical analysis is based on a panel cointegration approach for the period 2007-2019 for the sample of 37 European countries. The results suggest that all identified factors will continue to be important topics within the discussions on global 'green growth' policy decisions. The rest of the paper is organized as follows. In part 2 we will offer a brief overview of the theory that stands behind the Kaya identity together with related empirics. Part 3 reviews methodological background while part 4 analyses empirical results while interpreting relevant implications. Section 5 provides concluding remarks on the research.

2. THE STORY BEHIND KAYA IDENTITY

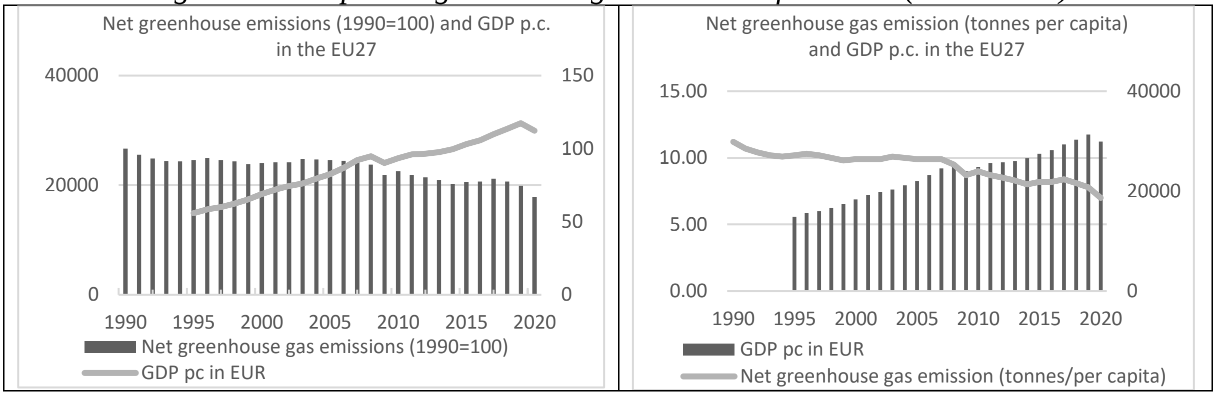
The level of CO_2 in the Earth's atmosphere has been on the increase since the industrial revolution, hence it is predicted that the level of CO_2 may rise to 34.08 billion metric tons by the year 2050 (EIA, 2019). On the other side there have been improvements in the energy intensity and carbon intensity in recent years, returning to levels not seen since the 1990's with GDP growth beginning to strengthen again. These three effects combined (slightly lower economic growth, improved energy intensity, improved carbon intensity) have all led to the slower growth in global CO_2 emissions (Peters et al., 2017). Although there is a need for more energy conservation, energy inputs are necessary in production (unquenchable demand for economic growth, population upsurge, heating energy demands, energy prices that have not fully encompass environmental costs and etc.) and consequently the configuration of the impact of energy cuttings on economic growth remains important (Menegaki, 2021). Since economic progress improves life quality to a certain point, it can also produce a negative outcome beyond this point, so when this point is crossed, further economic growth and development could indeed deteriorate the quality of life due to the costs associated with an increasing income inequality, the rise in social and public health cost, loss of leisure time, pollution damage, climate change, natural resource depletion, and etc. Hence, the conjunction of equitable, sustainable and green development and current patterns of economic growth comes into first plan. If the world wants to avoid negative consequences of global temperature rise, greenhouse emissions and unsustainable economic growth, the challenge becomes an unprecedented in its scale and complexity requiring interdisciplinary approach straightway. As to meet general standards of green growth, having in mind, expectation of further growth of population and quality of life, the only way to bridge the gap is to further rationalise the use of energy and reduce the CO_2 emissions in the production of energy, particularly through the promotion of energies low in carbon.

This orientation in the EU policies was clear until recently, when, due to the war in Ukraine and the introduction of numerous (trade and others) restrictions to Russia, gas supply became questionable in Europe, and the largest European economy (Germany) promotes savings of gas spending and also hinted at the use of coal for electricity production (AP news, 2022). In other words, the survival of production and economic growth depends on domestic (and EU's) resources on the one hand, and on the search for other foreign suppliers of needed resources. The structural approach often used to analyse the dynamics of global emissions growth is based on famous decomposition know as the Kaya identity. The Kaya identity is a useful equation for quantifying the total emissions of the CO_2 from anthropogenic activities that is based on easily approachable data and can be used to quantify current emissions as well as how the relevant factors need to change to reach a desirable level of CO_2 emissions. Following the Kaya identity relations, if we want to achieve targeted levels of CO_2 emissions, it is required to act in a radical manner within all areas of interest (factors of influence) to limit the impact the socio-economic impact of human activity on the environment. The original Kaya identity formula is based on the following equation:

$$CO_2 = Population \times [GDP / Population] \times [Energy / GDP] \times [CO_2 / Energy] \qquad (1)$$

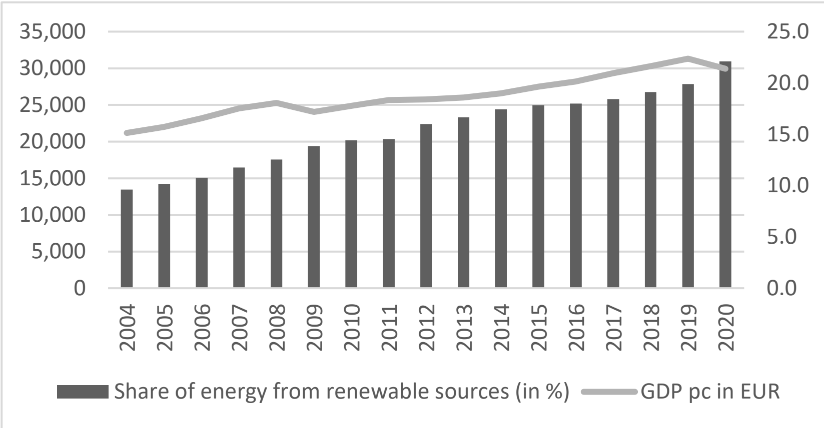
as global CO_2 emissions from human activity are a direct consequence of the global population, quality of life, energy intensity and intensity of carbon within the energy mix. Kaya identity assumes that it is possible to make an informed projection of future CO_2 as socio-economic variables such as population (rising population means more energy use) and economic production measured by GDP per capita – (GDPpc; larger economy results in greater use of energy) have detrimental part in explaining CO_2 dynamics (Tomić and Stjepanović, 2022). The energy intensity term is where technology becomes important too, as new energy technologies or improved efficiency of existing energy technology leads to situations where less energy is needed for the increase in output. Furthermore, carbon efficiency suggests that a focus or switch over to renewable energy sources and non-fossil fuel-based energy alternatives and improve the carbon efficiency of existing fossil fuel sources we could expect less carbon emitted per unit of energy production (Mann and Gaudet, 2021). In reverse, the main dimensions of sustainable and green development become the use of renewable energy sources and CO_2 emissions reduction. Glancing at the *Figures 1* and *2*, indicates that the share of renewable energy in total energy consumption leads to a decreasing greenhouse emission within the EU countries.

Figure 1: GDPpc and greenhouse gas emissions for EU27 (1990–2020)



Source: Eurostat (2022)

Figure 2: GDPpc and renewable energy consumption for EU27 (2004–2020)



Source: Eurostat (2022)

When we turn to recent empirical evidence we find relatively coherent conclusions. Khusna and Kusumawardani (2021) calculated the Kaya relationship in eight ASEAN countries from 1990 to 2017 by using the Logarithmic Mean Division Index (LMDI). The authors found that the effect of energy intensity causes CO_2 emissions in lower-middle income countries to decrease, while in upper-middle and high-income countries, it increases carbon emissions. In addition, they found that in contrast to the effect of carbon intensity, this actually makes a CO_2 emission increase in lower-middle income countries and reduces carbon emissions in upper-middle and high-income countries. Ma et al. (2020) analyzed the mitigation potential of the various factors for CO_2 emissions, by combining LMDI approach with global energy interconnection scenarios, suggesting that clean energy development and electrification are the top two factors that can decrease CO_2 emissions, thus showing their great potential for mitigation in the future. Moreover, the authors concluded that the carbon capture and storage technology can serve as an important supplementary mitigation method. Hwang, Um and Schlüter (2020) evaluated causal relationships by conducting a parallel multiple mediation analysis. The authors used the fossil fuel CO_2 flux based on the Open-Source Data Inventory of Anthropogenic CO_2 emissions and found out that the indirect effects of the decomposed variables on the CO_2 flux are significant, however, that the Kaya identity factors show neither strong nor even significant mediating effects. Zhang et al. (2020) employed a LMDI approach to track the historical contributions of various drivers of carbon emissions, as well as predictions into the future.

The authors revealed that economic development and population growth are the two largest drivers of historical industrial CO_2 emissions and that carbon intensity and industry energy intensity are the top two drivers for the decrease of future industrial CO_2 emissions. They proposed three modes, i.e., clean supply, electrification, and energy efficiency for industrial emission reduction.

3. METHODOLOGICAL BACKGROUND

3.1. Methodology and data

Kaya identity tries to explain how national production, population and energy consumption intervene with global CO_2 emissions. However, energy consumption can be decomposed into several integral elements, of which some could be used in a more environmentally damaging way and some so-called cleaner energy consumption could alleviate the gap between standard and more sustainable growth paths. *Ditto*, in order to also grasp the relevance of energy consumption in the creation of CO_2 emissions, we will divide our analysis into two parts; one that is evaluating original postulates of the Kaya identity and the other that associate the impact of distinct categories of energy intensity within the broaden Kaya formula by which we want to emphasize an even greater role of cleaner energy sources. Our formulation of these two relations can be expressed as:

$$CO_2\ emission = GDPpc \times Energy\ intensity \times Carbon\ intensity \tag{2}$$

$$CO_2\ emission = GDPpc \times Energy\ intensity\ by\ sources \times Carbon\ intensity \tag{3}$$

so that the CO_2 variable reflects carbon dioxide dynamics in respect to change in *GDPpc* (amalgamation of human and economic activity), trends in *CO_2 emission* and technological aspect through ratios of Energy/GDP and CO_2/Energy i.e. *Energy intensity* and *Carbon intensity*, whereas in the *equation (2)* energy intensity is to be evaluated through different elements of energy consumption that comprise the total energy consumption.

Annual data for the period 2007-2019 and for the sample of selected 37 European countries, are taken from the Eurostat and World Bank database. The study and data selection follow research logic from Stjepanović, Tomić and Škare (2019) based on their novel approach in evaluation of green topics. (Stjepanović, Tomić and Škare, 2017). Data are expressed in logarithms and presented as: *$lnCO_2$* as the logarithm of annual CO_2 emission in tonnes, *lnGDPpc* as the logarithm of gross domestic product per capita measures in current U.S. dollars, *lnEINT* or energy intensity as the logarithm of energy consumption per GDP in kwh per U.S. dollar and *lnCINT* or carbon intensity as the logarithm of an annual CO_2 emissions per unit energy in kg per kwh. Energy consumption can be expressed through its comprising elements, hence in the equation (2) we used next variables: *lnFFUEL* as the logarithm of solid fossil fuel consumption, *lnNGAS* as the logarithm of natural gas consumption, *lnOIL* as the logarithm of oil and petroleum consumption and *lnRENEW* as the logarithm of renewable and biofuel consumption, so that the energy consumption variables are expressed as a thousand tonnes of oil equivalent. In order to obtain ratios as energy intensity, each variable of energy consumption is expressed as the logarithm of distinct energy consumption per GDP in kwh per U.S. dollar.

To depict a possible causal relationship between the variables, correlation coefficients were computed in *Table 1* indicating relatively low but positive correlation for the CO_2 variable to output variable and two intensity variables on one side and relatively high and positive correlation between the CO_2 variable and distinct energy consumption variables.

Table 1: Correlation matrix

Correlation	lnGDPpc	$lnCO_2$	lnCINT	lnEINT	lnFFUEL	lnNGAS	lnOIL	lnRENEW
lnGDPpc	1.00	0.30	-0.31	-0.33	-0.11	0.20	0.27	0.08
$lnCO_2$	0.30	1.00	0.11	-0.11	0.73	0.87	0.95	0.74
lnCINT	-0.31	0.11	1.00	-0.03	0.22	0.16	0.00	-0.14
lnEINT	-0.33	-0.11	-0.03	1.00	0.05	-0.06	-0.23	-0.18
lnFFUEL	-0.11	0.73	0.22	0.05	1.00	0.63	0.67	0.56
lnNGAS	0.20	0.87	0.166	-0.06	0.63	1.00	0.82	0.64
lnOIL	0.27	0.95	0.01	-0.23	0.67	0.82	1.00	0.77
lnRENEW	0.08	0.74	-0.14	-0.18	0.56	0.64	0.77	1.00

Source: Authors' calculations

Due to a large volume of data on a cross-country scale and possible homogeneity among the European countries, it can be anticipated that cointegration between included variables may exist (Tomić and Stjepanović, 2022). Consequently, we will consider modelling through cointegration method with panel data. In order to proceed with panel analysis, variables must first meet the standard of non-stationarity. If the variables are non-stationary and integrated of the same order, the analysis can continue with testing for the panel cointegration. Several panel unit root tests from *Table 2*, namely LLC test (Levin, Lin and Chu, 2002), Breitung test (Breitung, 2000), IPS test (Im, Pesaran and Shin, 2003) and Fisher-type tests using the ADF (Maddala and Wu, 1999), suggested that all variables are integrated I(1), meaning they are stationary in their first differences.

Table following on the next page

Table 2: Panel unit root tests

Variable and test	*Level*		*First difference*	
	Intercept	*Intercept and trend*	*Intercept*	*Intercept and trend*
*Levin, Lin and Chu t**	*Prob.***			
lnGDPpc	0.77	0.00	0.00	0.00
$lnCO_2$	0.09	0.00	0.00	0.00
lnCINT	0.92	0.10	0.00	0.00
lnEINT	0.87	0.00	0.00	0.00
lnFFUEL	0.05	0.00	0.00	0.00
lnNGAS	0.00	0.16	0.00	0.00
lnOIL	0.00	0.00	0.00	0.00
lnRENEW	0.00	0.69	0.00	0.00
Breitung t-stat	*Prob.***			
lnGDPpc	-	0.64	-	0.00
$lnCO_2$	-	0.11	-	0.00
lnCINT	-	0.78	-	0.00
lnEINT	-	0.90	-	0.00
lnFFUEL	-	0.11	-	0.00
lnNGAS	-	0.50	-	0.00
lnOIL	-	0.95	-	0.00
lnRENEW	-	0.71	-	0.00
Im, Pesaran and Shin W-stat	*Prob.***			
lnGDPpc	0.98	0.49	0.00	0.00
$lnCO_2$	0.82	0.14	0.00	0.00
lnCINT	0.77	0.06	0.00	0.00
lnEINT	0.87	0.41	0.00	0.01
lnFFUEL	0.07	0.21	0.00	0.00
lnNGAS	0.44	0.74	0.00	0.00
lnOIL	0.33	0.19	0.00	0.00
lnRENEW	0.10	0.11	0.00	0.00
ADF - Fisher Chi-square	*Prob.****			
lnGDPpc	0.81	0.22	0.00	0.00
$lnCO_2$	0.98	0.27	0.00	0.00
lnCINT	0.13	0.03	0.00	0.00
lnEINT	0.81	0.27	0.00	0.00
lnFFUEL	0.09	0.70	0.00	0.00
lnNGAS	0.89	0.96	0.00	0.00
lnOIL	0.19	0.29	0.00	0.02
lnRENEW	0.07	0.09	0.00	0.00

*Notes: * Heteroscedastic Consistent. ** Probabilities are computed assuming asymptotic normality. *** Probabilities are computed using an asymptotic Chi-square distribution. All tests are evaluated by different lags.*
Source: Authors' calculations

Our long-run cointegration models are estimated using the pooled Panel Fully Modified Least Squares (FMOLS), pooled Panel Dynamic Least Squares (DOLS) and Pooled Mean Group/AR Distributed Lag (PMG/ARDL) approaches. Since FMOLS and DOLS provide only long-run estimates, for the short-run estimation PMG/ARDL is also applied[1].

[1] FMOLS and DOLS estimation methods for panel settings allow the estimation of the panel cointegrating regression equation for non-stationary data by correcting the standard pooled OLS for serial correlation and endogeneity of regressors that are usually present in long-run relationships. In addition, the DOLS allows augmenting the panel cointegrating regression equation with cross-section specific lags and leads to eliminate the endogenity and serial correlation. The PMG/ARDL (Pesaran, Shin and Smith, 1999) takes the cointegration form of the simple ARDL model and adapts it for a panel setting by allowing the intercepts, short-run coefficients and cointegrating terms to differ across cross-sections. The main advantage over the FMOLS and DOLS is that it can allow the short-run dynamic specification to differ across cross-sections while the long-run coefficients are constrained to be invariant. For FMOLS and DOLS the default coefficient covariance matrix computations use an estimator of the long-run variance computed using a Bartlett kernel and fixed Newey-West bandwidth. So, within DOLS approach, lags and leads are specified using the automatic lag length selection based on the Schwarz information criterion. For PMG/ARDL, the automatic lag length selection of dependent variable and dynamic regressors is set as a maximum lag of 2 based on a Schwarz criterion (Tomić, Šimurina and Jovanov, 2020).

3.2. The models

Research logic of the *equation (1)* following the characteristic of the data, can be represented as:

$$lnCO_{2it} = \alpha_{0i} + \alpha_1 lnGDPpc_{it} + \alpha_2 lnEINT_{it} + \alpha_3 lnCINT_{it} + u_{it}$$
$$i = 1, 2, K, N, \quad t = 1, 2, K, T \qquad (4)$$

which can, consequently, be considered for panel cointegration modelling[2]. Results from cointegration tests are presented within *Table 3*. Majority of the Pedroni's statistics reject the null hypothesis of no cointegration between variables indicating the existence of long-run panel cointegration relationship between the variables with at least one cointegrating vector. Kao's panel cointegration test also strongly rejects the null hypothesis of no cointegration between variables indicating the existence of long-run panel cointegration relationship between the variables. According to two residual cointegration tests, a convincing evidence of a long-term cointegration between the variables for the *equation (4)* is found.

Table 3: Cointegration tests from equation (4)

Variables: $lnCO_2$, lnGDPpc, lnEINT, lnCINT								
Pedroni residual cointegration test	*Intercept*				*Intercept and trend*			
	Statistic	*Prob.*	*Weighted Statistic*	*Prob.*	*Statistic*	*Prob.*	*Weighted Statistic*	*Prob.*
Panel v-Statistic	-2.38	0.99	-1-28	0.90	-4.52	1.00	-3.39	0.90
Panel rho-Statistic	2.50	0.99	2.93	0.99	5.72	1.00	5.59	1.00
Panel PP-Statistic	-6.15	0.00	-6-87	0.00	-7.35	0.00	-8.22	0.00
Panel ADF-Statistic	-1.70	0.04	-4.61	0.00	-3.94	0.04	-4.10	0.00
Group rho-Statistic	5.56	1.00			7.65	1.00		
Group PP-Statistic	-11.97	0.00			-13.26	0.00		
Group ADF-Statistic	-6.02	0.00			-3.61	0.00		
Kao residual cointegration test	*t-Statistic*				*Prob.*			
ADF	-2.16				0.02			

Source: Authors' calculations

The results across almost all estimation methods (*Table 4*) display statistically significant long-run coefficients with zero restrictions tests (Wald test available upon request), supporting its relevance. Namely, GDPpc coefficients are positive and strongly significant varying from 0.10 to 0.70 in the cases with constant and constant with trend (except the coefficient obtained from the DOLS method with constant and trend, which is statistically insignificant and negative). PMG/ARDL recorded even stronger relation ranging from 1.10 to 1.55. Next, energy intensity coefficients are also positive and significant varying from 0.46 to 0.74 across all cases within FMOLS and DOLS, however PMG/ARDL estimation method implied disparate results. Carbon intensity coefficients tend to be positive and strongly significant varying from 0.69 to 1.61 in the for all three estimation methods. PMG/ARDL short-run estimations (available upon request) in majority provide similar results to a long-run behavior, though the direction of impact and statistical significance of the error-correction term differ across the countries in the panel. In line with the results, it can be concluded that a rise in human welfare, thus production and consumption in general leads to an increase in CO_2 emissions, thus having a negative

[2] Following the research logic from Škare, Benazić and Tomić (2016), panel cointegration tests were evaluated according to Pedroni (1999, 2004) and Kao (1999). Pedroni and Kao extend the two-step Engle-Granger framework to tests involving panel data. Pedroni proposes several tests for cointegration that allow for heterogeneous intercepts and trend coefficients across cross-sections with two alternative hypotheses: the homogenous vs. heterogeneous alternative. The Kao test follows the same approach as the Pedroni tests, but specifies cross-section specific intercepts and homogeneous coefficients within the first-stage regressors.

environmental. Even though the trend between the energy intensity and carbon intensity in regard to CO_2 emissions is diverging (decoupling) over the longer period, high GDPpc growth and rising population have probably cancelled positive effects of decreasing energy and carbon intensity. Is that all there is in this environmental story? Our next model could be more enlightening.

Table 4: Panel cointegration results from equation (4)

Panel Fully Modified Least Squares (FMOLS) – (lags-leads; 1,1) – pooled estimation								
Variable	*Constant*				*Constant and trend*			
	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
lnGDPpc	0.10	0.03	3.06	0.00	0.10	0.03	3.21	0.00
lnEINT	0.46	0.04	12.34	0.00	0.46	0.04	12.36	0.00
lnCINT	0.70	0.05	13.69	0.00	0.70	0.05	13.63	0.00
Panel Dynamic Least Squares (DOLS) – (lags-leads; 0,0)- grouped estimation								
	Constant				*Constant and trend*			
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
lnGDPpc	0.70	0.02	35.77	0.00	-0.09	0.13	-0.72	0.47
lnEINT	0.74	0.05	14.77	0.00	0.47	0.08	6.19	0.00
lnCINT	0.73	0.19	3.83	0.00	0.69	0.20	3.43	0.00
PMG/ARDL (Pooled Mean Group/AR Distributed Lag) – ARDL (1,1)								
	No constant no trend				*Restricted constant*			
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
	Long Run Equation							
lnGDPpc	1.10	0.03	32.17	0.00	1.55	0.11	14.33	0.00
lnEINT	-0.13	0.09	-1.43	0.15	0.03	0.07	0.49	0.62
lnCINT	1.58	0.11	14.03	0.00	1.61	0.12	14.05	0.00
	Short Run Equation							
COINTEQ01	0.02	0.02	0.73	0.47	-0.02	0.10	-0.18	0.85
D(lnGDPpc)	0.04	0.07	0.59	0.55	-0.13	0.16	-0.83	0.41
D(lnEINT)	0.61	0.09	6.76	0.00	0.66	0.14	4.62	0.00
D(lnCINT)	0.99	0.14	7.05	0.00	1.35	0.26	5.21	0.00
C					-0.27	1.10	-0.24	0.81

Source: Authors' calculations

Research logic of the *equation (3)* following the characteristic of the data, can be represented as:

$$lnCO_{2it} = \alpha_{0i} + \beta_1 lnGDPpc_{it} + \beta_{2i} lnFFUEL_{it} + \beta_{3i} lnNGAS_{it} + \beta_{4i} lnOIL_{it} + \beta_{5i} lnRENEW_{it} + \beta_6 lnCINT_{it} + u_{it} \quad i = 1, 2, K, N, \; t = 1, 2, K, T \qquad (5)$$

which is as well considered for panel cointegration modelling. Results from cointegration tests are presented within *Table 6*. Again, most of the Pedroni's statistics reject the null hypothesis of no cointegration between variables indicating the existence of long-run panel cointegration relationship between the variables with at least one cointegrating vector. Similarly, Kao's panel cointegration test strongly rejects the null hypothesis of no cointegration between variables indicating the existence of long-run panel cointegration relationship between the variables of interest. Following cointegration tests, a convincing support of a long-term cointegration between the variables for the *equation (5)* is evident.

Table 5: Cointegration tests from equation (5)

Variables: $lnCO_2$, lnGDPpc, lnCINT, lnFFUEL, lnNGAS, lnOIL, lnRENEW								
Pedroni residual cointegration test	*Intercept*				*Intercept and trend*			
	Statistic	*Prob.*	*Weighted Statistic*	*Prob.*	*Statistic*	*Prob.*	*Weighted Statistic*	*Prob.*
Panel v-Statistic	-3.38	0.99	-3.37	0.99	-0.24	0.59	-3.81	0.99
Panel rho-Statistic	7.34	1.00	6.93	1.00	8.63	1.00	8.57	1.00
Panel PP-Statistic	-0.88	0.19	-4.86	0.00	-6.16	0.00	-11.78	0.00
Panel ADF-Statistic	-2.40	0.01	-2.13	0.02	-1.39	0.08	-2.19	0.01
Group rho-Statistic	9.03	1.00			9.93	1.00		
Group PP-Statistic	-12.18	0.00			-21.54	0.00		
Group ADF-Statistic	-1.43	0.08			-0.21	0.41		
Kao residual cointegration test	*t-Statistic*				*Prob.*			
ADF	-5.37				0.00			

Source: Authors' calculations

The panel cointegration results from FMOLS, DOLS and PMG/ARDL estimations are presented in *Table 6* testing the characteristics of the long-run linear cointegration from the *equation 5*.

Table 6: Panel cointegration results from equation (5)

Panel Fully Modified Least Squares (FMOLS) – (lags-leads; 1,1) – pooled estimation								
	Constant				*Constant and trend*			
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
lnGDPpc	0.09	0.03	2.82	0.01	0.11	0.03	3.33	0.00
lnFFUEL	1.09	0.30	3.66	0.00	0.96	0.30	3.19	0.00
lnNGAS	2.83	0.41	6.91	0.00	2.85	0.41	6.96	0.00
lnOIL	6.34	0.74	8.57	0.00	6.61	0.74	8.91	0.00
lnRENEW	-2.41	0.46	-5.30	0.00	-2.24	0.46	-4.90	0.00
lnCINT	0.61	0.06	10.28	0.00	0.67	0.06	10.93	0.00
Panel Dynamic Least Squares (DOLS) – (lags-leads; 0,0)- pooled estimation								
	Constant				*Constant and trend*			
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
lnGDPpc	0.12	0.04	3.28	0.00	0.23	0.04	5.65	0.00
lnFFUEL	1.36	0.29	4.63	0.00	0.90	0.36	2.51	0.01
lnNGAS	4.01	0.66	6.03	0.00	1.45	0.69	2.10	0.04
lnOIL	5.51	0.73	7.54	0.00	7.73	0.89	8.39	0.00
lnRENEW	-2.45	0.51	-4.82	0.00	-1.08	0.63	-1.70	0.09
lnCINT	0.62	0.08	7.87	0.00	0.58	0.09	6.62	0.00
PMG/ARDL (Pooled Mean Group/AR Distributed Lag) – ARDL (1,1)								
	No constant no trend				*Restricted constant*			
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
	Long Run Equation							
lnGDPpc	0.52	0.01	35.60	0.00	0.40	0.04	10.74	0.00
lnFFUEL	3.75	0.26	14.20	0.00	3.37	0.13	26.97	0.00
lnNGAS	4.02	0.35	11.43	0.00	8.23	0.32	25.37	0.00
lnOIL	12.54	0.88	14.26	0.00	7.98	0.72	11.13	0.00
lnRENEW	-0.91	0.43	-2.12	0.04	-0.33	0.35	-0.94	0.03
	Short Run Equation							
COINTEQ01	-0.04	0.03	-1.59	0.11	-0.26	0.08	-3.13	0.00
D(lnGDPpc)	0.10	0.10	1.02	0.31	0.13	0.25	0.52	0.61
D(lnFFUEL)	1.17	0.30	3.95	0.00	0.72	0.34	2.13	0.04
D(lnNGAS)	5.10	0.82	6.20	0.00	3.26	0.95	3.42	0.00
D(lnOIL)	9.11	1.12	7.39	0.00	7.05	1.49	4.72	0.00
D(lnRENEW)	-0.12	0.89	-0.14	0.89	0.63	0.97	0.64	0.52
C					0.60	0.19	3.19	0.00

Source: Authors' calculations

Results of all pooled estimation methods indicate that long-run coefficients are statistically significant with a direction that is expected. Zero restrictions on the long-run parameters are tested using the Wald test (available upon request), confirming their statistical significance. As in previous cases, variables GDPpc and carbon intensity demonstrate positive and highly statistically significant coefficients (expect within the PMG/ARDL approach in which we eliminated carbon intensity variable in order to achieve stable model). When observing energy intensity per different factors, we found that fossil fuel consumption intensity variable (ranging from 0.90 to 3.75), natural gas consumption intensity variable (ranging from 2.83 to 8.23) and oil and petroleum consumption intensity variable (ranging from 5.51 to 12.54) provided also positive and statistically significant coefficients, suggesting that these aspects of consumption have a much greater (environmentally) negative impact on the CO_2 emission compared to output and carbon intensity variables. This means that consumption of fossil fuels, natural gas and oil and petroleum, could be the drivers of global CO_2 emission, thus, their environmental implications could be a limiting factor for greener and more sustainable growth. On the other hand, renewable and biofuel consumption intensity variable (ranging from -0.33 to -2.45) display statistically significant negative coefficients, implying that an increase in this kind of consumption decreases the CO_2 emission. Since renewable and biofuel consumption generates less environmental pollution, it can be represented as a strong driver of sustainable progress. Again, PMG/ARDL short-run estimations (available upon request) in majority provide similar results to a long-run dynamics, whereas the direction of impact and statistical significance of the error-correction term differ across the countries in the panel.

4. IMPLICATION OF THE RESULTS

Considering the lack of globally recognizable measures which could gauge the sustainable development of the global green initiatives, environmental sustainability vs. progress often relies on well-know indicators such as the CO_2 emission. Our empirical models provide a valuable insight into the background and the relationship between the dynamics of CO_2 emissions and relevant anthropogenic activities for European countries, suggesting that an increase in most of these activities made by 'human hand' negatively affects green aspirations. Higher growth rates and thus, individual welfare improvement, usually require a large amount of energy consumption, whereas high energy consumption that is associated with low environmental awareness, hence an increse in consumption of energy in sectors that are environmentally more damaging (such as solid fossil fuels, oil and petroleum, and also natural gas), leads to a continuous pressure towards persistent global greenhouse gas emission growth. On the opposite side, renewable and biofuel consumption as the dominant factor that positively influence the CO_2 emission by slowing its trend, presents a good starting position to promote green growth. Renewable energy sources make efficient and effective use of natural assets in production and consumption than any other energy source. Even though total energy consumption deters green growth, to the domination of renewable energy in the energy mix could contribute to green and sustainable economic outcomes (Tomić and Stjepanović, 2022). Technologies that use fossil fuel combustion have been, in some manner replaced by new energy sources, which reduces carbon emissions as a result. However, positive effects of renewable energy in European countries have diminished, especially after the Global Crisis. For example, Tomić, Đorđević and Grdić (2022) suggested that renewable energy sources (from the point of total energy supply) are associated with a negative coefficient in regard to CO_2 emissions[3], suggesting that renewable energy plays an interesting, but still limited, role in promoting the green economy. Renewable energy has proven to be one of the best alternatives for cleaner production and thus for reducing pollution.

[3] The authors concluded that the development of environmentally 'friendly' technologies and the supply of renewable energy have a negative impact on CO_2 emissions, while the total supply of primary energy has a positive impact on CO2 emissions.

The development of renewable energy can ensure energy security, promote economic growth and alleviate poverty. Renewable energy in production also reduces costs, which means that it pollutes less. These conclusions implicate that when it comes to sustainability issues and greener growth, production as well as consumption based on renewable energy should have a greater role in promoting economic growth for European countries and that this consumption. Most of the studies in this field of research are in compliance that extensive output growth coupled with increasing population leads to more fossil fuel, natural gas and oil and petroleum consumption that contributes towards higher levels of greenhouse gas emissions, hence it calls for a set of policies that would promote energy efficiency and security as well as decrease CO_2 emission on a global scale without adversely affecting economic growth and development prospects.

5. CONCLUDING REMARKS

The growing concern of climate change as well as evident ecological consequences has made greenhouse gas emissions an important research topic. The purpose of this study was to perform quantitative evaluation of the broaden Kaya identity in order to provoke further discussion on European environmental priorities pointed towards resource and energy efficiency, low-carbon economy, waste management and in general a transition to a so-called green economy. Among a bulk of environmental indicators such as CO_2 emissions, waste generation, greenhouse gas emissions, sulphur dioxide, average global surface temperature, resource depletion and other specific measures (like ozone layer, biodiversity and energy resources), CO_2 emissions from energy use and other greenhouse gas emissions, continue to grow over time. This can be attributed to energy production and consumption patterns and/or trend, low energy prices as well as to changes in energy structures, energy conservation, energy saving vs. energy supply mix and etc. Furthermore, CO_2 emission is not seen as a local pollutant, but a global one, so its relation to other anthropogenic variables can be very important in formulating (both economic and environmental) policies for low and middle income countries as well as for developed European countries. Our paper makes various contributions to environmental discussions as it enlists some aspects of energy efficiency. First, it uses recent data revealing distinct environmental and economic developments within the European continent. Second, it reformulates Kaya identity in order to associate the impact of distinct categories of energy intensity within the broaden Kaya formula by which we wanted to underline the role of clean energy sources for sustainability perspective. Third, we confirmed that consumption of fossil fuels, natural gas and oil and petroleum, are the main drivers of global CO_2 emission, thus a limiting factor for green and sustainable progress. Renewable and biofuel consumption intensity on the other side decreases the CO_2 emissions. Since renewable and biofuel consumption generates less environmental pollution, it can be distinguished as a driver of sustainable progress. It means that if European countries are committed to their social and environmental goals, they could move closer to them by reaching policy decisions in favour of energy efficiency and decarbonization of energy mix. And forth, this research offers confined contributions to environmental economics as Kaya (and other similar identities) is valuable measurement that continues to be important in the discussions of global climate and economic policy decisions rendering important socio-economic and environmental implications. The future development of CO2 reduction will mainly depend on the relations with Russia and possibility to import enough quantity of gas. In the opposite, it can be expected a shift from the policy of CO2 reduction to the policy of ensuring resources to maintain the development trend and economic growth, which can very likely be connected with a greater use of fossil fuels. Such a policy would represent a step backwards and would undermine the multi-year positive trends in CO2 reduction. In such circumstances the EU's objective to become the "climate neutral" till 2050 seems to be unrealistic and unachievable.

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ANALYSIS OF THE SCOPE AND USE OF VARIOUS SYSTEM STANDARDS

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ABSTRACT

Bothe developed and developing economies are characterized by a very large number of activities of transformation, reorganization or modification of various production and non-production processes to improve competitiveness on the one hand and protection of resources (human, material and natural) on the other. The International Organization for Standardization (ISO) began to publish system standards in relation to a relatively large number of conceptual frameworks, tools, guidelines or manuals, with their universal applicability in this field. An approach based on the implementation of such system standards at the level of organizations that use them guarantees transparency, interoperability and competitiveness. However, since the implementation of these system standards requires meeting the relevant requirements, the number of organizations that implement them at the national level depends on many factors, such as the level of development and economic diversification, gross domestic product, training, initiatives of national standardization bodies, subsidies and other incentives, legal facilities, promotion, requests of accreditation bodies, etc. This paper presents a comparative analysis of the rate of implementation of various system standards at the global level, as well as in Serbia. The basic input data for the comparison were synthesized from the global reports of the ISO for 2020, 2019 and 2018 databases (ISO survey). The key conclusion of the paper is that the level of economic development is not a key prerequisite for the mass implementation of system standards. In this sense, future research needs to be directed towards promoting the implementation of system standards and defining appropriate training of all stakeholders in these processes.

Keywords: *Standardization, System standards, Implementation, Environment, Safety*

1. INTRODUCTION – STANDARDIZATION

Modern society is characterized by the fact that the management of human activities must be planned in an efficient and competitive way, for which the use of standards is an adequate basis (Martens, 2017). The beginnings of the process that are either directly or indirectly associated with standardization in modern times are reflected in the need to measure certain things, primarily for the purposes of trade. In that sense, the precursor of what would later in the industrial age develop into the first phase of standardization is the definition of the first units of measurement (weight, length, area, volume, and so on) for the exchange of goods within the first civilizations in the Nile Valley in Mesopotamia. This emphasizes the fact that humans, from the dawn of humankind until today, need to quantify and also unify the measurement of phenomena and objects from nature and their environment. The next step was the harmonization of units of measurement between different civilizations, because even then there was the problem of harmonization or 'translation' of units of measurement used in ancient Greece, Rome and Egypt. With the development of society, skills and knowledge and the division of labor, an obligation for quality has been imposed in terms of the production of products and services. Present-day type of quality monitoring originated in medieval Europe, where craftsmen organized themselves into some form of cooperatives that prescribed the basic principles for product quality. Until the early 19th century, production in the industrial world followed this artisan model. Factory systems placed the emphasis on product control, which began in Great Britain in the mid-18th century and developed with the Industrial Revolution. At the end of the 19th century, differences in standards between companies made trade more difficult and burdensome. In order to overcome the said problems, the first reference national standardization body was established in London in 1901 – the Committee for Engineering Standards. The committee expanded its work on standardization and became the British Association of Engineering Standards in 1918, adopting the name British Institute of Standards (BSI) in 1931, after receiving the Royal Charter in 1929. National standards have been adopted universally across the country and have allowed markets to operate more rationally and efficiently, with an increased level of cooperation. It is not surprising that the beginnings of modern standardization were defined in Great Britain, considering that at the beginning of the 20th century London was the administrative center of the economy that needed to be organized efficiently (Mušicki, 2020). The first International Federation of National Standards Associations (ISA) was founded in 1928 in Prague, with the broader task of improving international cooperation for all technical standards and specifications. This federation ceased to operate in 1942 during the Second World War. After the war, the ISA was approached by the newly formed United Nations Standards Coordination Board (UNSCC) with a proposal to form a new working body for global standards. In October 1946, delegates from ISA and UNSCC from 25 countries met in London and agreed to join forces in the creation of the new International Organization for Standardization (ISO), which officially began operations in February 1947, based in Geneva. Today, ISO is an independent, non-governmental, international organization that brings together a total of 164 national standardization bodies, such as the Institute for Standardization of Serbia (ISS) (Vasović, 2017a; Law on Standardization, 2015).

2. STANDARDS

A standard is a document that aims to harmonize the shape, size, quality and method of testing a product. In order to remove technical barriers in international cooperation and trade in goods, services and information, there was a need to harmonize the conditions that would be aimed at the essential requirements of health protection, safety, consumer protection and environmental protection (Vasović, 2017b).
The standardization process is based on the following principles:

- voluntary participation of all stakeholders in the process of adopting standards;
- voluntary implementation of standards;
- harmonization of stakeholders' views regarding the technical content of the standard is achieved by consensus;
- publicity and transparency of the standard-setting process;
- achievement of optimal benefits for the society as a whole.

Therefore, the standards:

- ensure that the products fit their purpose;
- increase the security of products and services;
- represent the technical basis for the adoption of regulations and support in their implementation;

- represent the basis for improving the quality of products and services;
- facilitate trade between different countries and contribute to the removal of technical barriers to trade;
- depict the current state of development of science and technology and thus represent a roadmap for developing countries on their path toward the world market;
- enable more efficient use of resources in the production process;
- contribute to the preservation of health and environmental protection; and
- make everyday life easier, because standards offer solutions to the problems that we all have in common.

In relation to the implementation within the economy, standards can be:
- De facto standards, which means that they are derived from informal conventions or dominant use in a particular field (a typical example is the PDF standard, or formats for video and audio media);
- De jure standards, which are part of legally binding contracts, laws or regulations (a typical example is the national standard for drinking water quality);
- Voluntary standards, which are published and available to people to consider for use (a typical example is the system quality standards).

Nowadays, standards are a part of our daily lives, and we are usually unaware of them (Shepherd, 2004). However, every person has at least once been in a situation where it was difficult to buy clothes because the size labels are different, where paying for the product was delayed because the barcode was poorly printed or the reading device did not work properly, or where they bought a product of poor or inadequate quality or a device that is not compatible with the rest of the equipment they own, etc. (Law on Standardization, 2015).

2.1. Representative standards and regulations
Today, there are over 20,000 different standards compiled in the unified database of all standards published by the ISO. Among them, technical standards prevail by number, while there are only several dozen system standards. A brief description of the characteristic system standards (ISO 9000, 14000, 45000 series, etc.) is given below.

2.1.1. Quality management system (QMS)
The ISO 9000 series of standards deals with various aspects of quality management and contains some of the most well-known ISO standards. These standards provide guidelines and tools for organizations that want to ensure that their products and services consistently meet customer requirements and needs. The standards in the ISO 9000 series are the following:
- ISO 9000: 2015, which contains basic concepts;
- ISO 9001: 2015, which sets the criteria for the quality management system;
- ISO 9004: 2009, which focuses on how to make this system more efficient, providing guidelines for achieving sustainable success; and
- ISO 19011: 2011, which sets out guidelines for audits of quality management systems, including verification principles, audit program management and implementation of management system audits, as well as guidelines for evaluating the competence of individuals involved in the process.

In addition to the above standards, ISO 19011: 2011 applies to all organizations that need to conduct internal or external audits of management systems or manage the audit program.

In addition to the above, the new version of ISO 9001 reference document – ISO 31000: 2015 –sets guidelines for risk management (ISO 31000: 2015). ISO 9001 is the world's most popular standard for quality management, which enables continuous monitoring and quality management in all business operations. It can be used by any organization, regardless of size and activity. This standard is based on a process approach, with continuous process improvement. It has been confirmed in business practice that the implementation of this standard can lead to greater efficiency, resource savings and increased profits. Also, organizing business processes in accordance with the requirements of ISO 9001 motivates employees, expands business opportunities and increases customer satisfaction (ISO 9001, 2015).

2.1.2. Environmental management system (EMS)

Environmental management systems should be understood as tools to help develop and implement environmental management principles in all fields of economy, from primary to tertiary. Environmental management system on the organization level can be created based on the following guidelines:

- International standard for environmental management system – the ISO 14001 series; or
- Regulation for the environmental management system of the European Union – EMAS (Eco-Management and Audit Scheme).

The main goals of the environmental management system are:

- conservation and sustainable use of natural resources;
- limitation of pollutant emissions and environmental hazards; and
- indirect contribution to the creation of safe working conditions.

The ISO 14000 series of standards covers various aspects of environmental management (ISO 14001: 2015). These standards provide practical tools for organizations that want to identify and control their impact on the environment and constantly improve their environmental performance. ISO 14001: 2015 and ISO 14004: 2017 are internationally accepted standards focusing on environmental management systems. ISO 14001 defines requirements and describes how to establish an effective environmental management system. This refers to those environmental aspects that the organization can identify as those it controls and those which can be influenced. This standard provides framework for doing business in accordance with legal regulations, as well as growing expectations by customers regarding corporate responsibilities. Its implementation can lead to the organization's development and operations with reduced environmental impact. Environmental management reduces waste and saves energy, and thus reduces the overall cost of business. ISO 14005: 2013 provides guidelines for the phased implementation of environmental management systems, including the use of environmental performance evaluation, while ISO 14006: 2013 provides guidelines for establishment, documentation, implementation, maintenance and continuous improvement of environmental management system (EMS). It is intended for use by organizations that implement EMS in accordance with ISO 14001. ISO 14006: 2011 (revised in 2020) refers to those aspects of the environment related to the product that the organization can control and influence. ISO 14064-1: 2007 specifies the principles and requirements for quantification and reporting on greenhouse gases (GHG) and their removal. This includes requirements for design, development, management, reporting and verification of the organization's GHG inventory. ISO 14031: 2016 – Evaluation of environmental performance provides guidance on the design and implementation of environmental performance evaluations (EPE) in the organization. It can be applied to any organization, regardless of their type, size, location and complexity (Stojanović, 2020).

2.1.3. Occupational Health and Safety (OHS) system

Occupational Health and Safety (OHS) is an essential part of an organization's professional risk management strategy. The implementation of the OHS system allows the organization to:

- protect its employees and others under its control;
- comply with legal requirements;
- support continuous improvement.

ISO 45001 is a new international standard for the OHS field. Although similar to the previous OHSAS 18001 standard, the new ISO 45001 standard adopts the highest-level framework for all new and revised ISO management system standards. ISO 45001 can be harmonized with other management system standards, such as ISO 9001: 2015 and ISO 14001: 2015, i.e., integrated with them. ISO 45001 was published in March 2018. ISO 45001 places a strong emphasis on the context of the organization. It requires the organizations to consider what stakeholders expect from them in terms of occupational health and safety management. The organization must determine which stakeholders are relevant for its OHSMS (Occupational Health and Safety Management System), as well as the relevant requirements of the stakeholders (ISO 45001: 2018). The purpose of the ISO 45001 standard is to enable organizations to develop a high level of understanding of the important problems that can affect them positively or negatively and to consider how they manage their own OHS responsibilities to their employees. The standard deals with the issues that affect the organization's ability to achieve its own goals, which include those it has set for its OHS system, such as fulfilling its obligations under the OHS guidelines.

2.1.4. ISO 31000:2018 – Risk management

The ISO 31000: 2018 standard provides principles and generic guidelines for risk management (Rehman, 2021). The standard can be used by any public, private or social enterprise, association, group or individual. This international standard does not specifically apply to any industry or sector and it can be implemented over an organization's entire life cycle and with regard to a wide range of activities, including strategies and decisions, operations, processes, functions, projects, products, services and assets. The standard can be applied to any type of risk, whatever its nature and whether it has positive or negative consequences. Although the standard provides generic guidelines, it does not aim to promote uniformity of risk management in all organizations. When designing and implementing management plans and frameworks, the risk should take into account different needs of a specific organization, its objectives, context, structure, functioning, processes, functions, projects, products, services or assets and specific practices applied. The standard is intended to be used for the harmonization of risk management processes in existing and future standards. It uses a common approach to support standards addressing specific risks and/or sectors and does not replace those standards. This standard is not intended for certification (ISO 31000:2015).

2.1.5. ISO/IEC 27001: 2014 – Information technology – Security techniques – Information security management systems – Requirements

This international standard specifies the requirements for the establishment, implementation, operation, monitoring, review, maintenance and improvement of the documented information security management system (ISMS) within the context of overall business risks in the organization. It specifies the requirements for implementation of security management tailored to the needs of individual organizations or parts thereof. The standard is identical to EN ISO/IEC 27001: 2017 CEN/CLC/JTC 13.

In the context of information management, this international standard emphasizes:
- Confidentiality – information access limited only to the authorized persons;
- Integrity – protection of accuracy and completeness of information and method processing;
- Availability – authorized access to information and related activities that provide the information, at the time when it is needed and in the form in which it is needed.

ISO/IEC 27001: 2014 requires organizations to:
- identify critical places and assess information security risks;
- define activities to prevent or minimize risk; and
- review and take measures for continuous improvement of the system.

It is important to note that the general experience of good ISMS practice indicates that business data as well as information should be well protected, which, however, is not the case with personal data. That is the purpose of EU GDPR (General Data Protection Regulation). All EU countries and other countries receiving personal data of the EU citizens are obligated to harmonize their information security management system (ISMS) according to the requirements of the GDPR (Janaćković, 2020).

2.1.6. ISO / IEC 17025: 2017 – General requirements for the competence, impartiality and consistent operation of laboratories

Implementation of this standard facilitates the cooperation of laboratories and other bodies, which is how their results can be more easily accepted internationally. Laboratories that operate in accordance with this standard need to prove their competence, impartiality and consistency, which ensures the reliability of their processes and data. The standard specifies general requirements for competence, impartiality and consistency in the operation of laboratories. It is applicable to all organizations that involve laboratory activities, regardless of the number of staff in the laboratory. It can also be used by the users of laboratory services, legislative bodies, organizations and schemes used for peer review, accreditation bodies and others when harmonizing or recognizing the competence of the laboratory. The 2005 version of the standard focuses on meeting technical and organizational requirements, while the 2017 version classifies organizational requirements in more detail: general, structural, and resource requirements; process and management requirements; and technical requirements for resource and process requirements (ISO / IEC 17025: 2017).

2.1.7. EMAS regulation of the European Union – another approach to establishing the Environmental management system (EMS)

The Eco-Management and Audit Scheme (EMAS) regulation of the EU enables voluntary participation in the environmental management system for organizations operating in the EU and the European Economic Area. EMAS was originally proposed by the European Commission, led by ISO, as a series of tools that enable companies to simultaneously pursue environmental and competitive goals in a synergistic way. The EMAS system originally relied on organizations and was open only to industrial plants. However, the scope of EMAS has expanded and today EMAS can be implemented in any organization that has any impact on the environment. EMAS, unlike other EMS standards, emphasizes the fact that, in order for an organization to register and introduce EMAS, it must manage and improve not only the direct environmental aspects, but also the ‘indirect’ ones. The EMAS Regulation defines the indirect environmental aspect as an element of an organization’s activities or products that have or may have an impact on the environment and that may result from the organization’s interaction with third parties (Tošić, 2018).

In addition to the previously analyzed standards and regulations, it is necessary to remember that nowadays there are many different industry standards, guidelines and concepts that can improve the quality of products and services, improve the quality of the working environment and minimize environmental impact, such as Kaizen, Lean, 5s, 6σ, TPM, QC, SMED, etc. (Nešić, 2019). The point is that such approaches are usually compatible with one another and can be integrated into a single management system (BS PAS 99:2012; Nunhes, 2017; Domingues, 2015).

3. ANALYSIS

Insight into global processes related to standardization and implementation of syste m standards published by the International Organization for Standardization (ISO) can be systematically monitored since 2018, when ISO reports received a standardized form for system standards or for those standards that are subject to certification (it is important to note that such reports existed before 2018, but with considerably fewer details). Therefore, for the purposes of this paper, the data from the ISO report for 2018, 2019 and 2020 were analyzed. The following aspects were considered: relevant system standards, total number of certificates, percentage share as well as the trend of change in the total number of certificates, but also the trend of change in the percentage of a certain standard. The results of the analysis are shown in Table 1.

Standard	Total valid certificates 2018	% of total valid certificates is 2018	Total valid certificates 2019	% of total valid certificates is 2019	2019-2018 % change	2019-2018 % trend
ISO 9001:2015	878664	67.1956	880007	65.0374	-2.1582	0.1528
ISO 14001:2015	307059	23.4822	312111	23.0667	-0.4155	1.6453
ISO IEC 27001:2013	31910	2.4403	36347	2.6862	0.2459	13.9047
ISO 22000:2018	32120	2.4564	33500	2.4758	0.0195	4.2964
ISO 45001:2018	11952	0.9140	38518	2.8467	1.9327	222.2724
ISO 13485:2016	19472	1.4891	23045	1.7032	0.2140	18.3494
ISO 50001:2011	18059	1.3811	18209	1.3457	-0.0353	0.8306
ISO 20000-1:2011	5327	0.4074	6044	0.4467	0.0393	13.4597
ISO 22301:2012	1506	0.1152	1691	0.1250	0.0098	12.2842
ISO 28000:2007	617	0.0472	1874	0.1385	0.0913	203.7277
ISO 39001:2012	547	0.0418	864	0.0639	0.0220	57.9525
ISO 37001:2016	389	0.0003	869	0.0642	0.0639	123.3933
Total	1307622	100%	1353079	100%		3.4763

Standard	Total valid certificates 2020	% of total valid certificates in 2020	2020-2019 % change	2020-2019 % trend	2020-2018 % trend	2020-2018 change
ISO 9001:2015	916842	57.6280	-7.4094	4.1858	4.3450	38178
ISO 14001:2015	348473	21.9032	-1.1635	11.6503	13.4873	41414
ISO IEC 27001:2013	44499	2.7970	0.1107	22.4283	39.4516	12589
ISO 22000:2018	33741	2.1208	-0.3550	0.7194	5.0467	1621
ISO 45001:2018	190481	11.9727	9.1260	394.5246	1493.7165	178529
ISO 13485:2016	25656	1.6126	-0.0905	11.3300	31.7584	6184
ISO 50001:2011	19731	1.2402	-0.1056	8.3585	9.2585	1672
ISO 20000-1:2011	7846	0.4932	0.0465	29.8147	47.2874	2519
ISO 22301:2012	2205	0.1386	0.0136	30.3962	46.4143	699
ISO 28000:2007	520	0.0327	-0.1058	-72.2519	-15.7212	-97
ISO 39001:2012	972	0.0611	-0.0028	12.5000	77.6965	425
ISO 37001:2016	2065	0.1298	0.0656	137.6295	430.8483	1676
Total	1590966	100%		17.5812	21.6686	283344

Table 1: Trend of worldwide system standards usage for the 2018-2020 period
(Source: ISO Survey for 2018, 2019 and 2020, authors' calculations)

By analyzing the ISO report for 2020, 2019 and 2018, it is possible to define several key conclusions. First, the ISO is primarily committed to the monitoring of the 12 most important system standards selected by the ISO itself. Second, there is a continuous increase in the total number of system standard certificates, although there are oscillations in the percentage of certain certificates. Third, there is a possibility of reducing the number of certificates, which is a very rare case, but it has been verified on the basis of the ISO 28000: 2007 standard. The following conclusions are presented in more detail:

- The total number of issued certificates had a stable increase, from 1,307,622 certificates in 2018, through 1,353,079 certificates in 2019, to 1,590,966 certificates in 2020 (increase by approximately 3.5% in 2019 and by approximately 17.5% in 2020).
- The most popular system standard by far is ISO 9001: 2015, with a total number of 878,664 certificates in 2018, 880,007 certificates in 2019, and 916,842 certificates in 2020 (increase by approximately 0.2% in 2019 and by approximately 4.2% in 2020). Although there is an increase in the total number of certificates issued for the implementation of this standard, the share of this standard is decreasing (from approximately 67.2% in 2018, through 65% in 2019, to 57.6% in 2020), primarily due to the increase in the number of certificates of ISO 45001: 2018 as well as other standards.
- The absolute winner in terms of the number of issued certificates and the increase in share is the ISO 45001: 2018 standard, which saw a continuous increase in the number of issued certificates from 11,952 certificates in 2018, through 38,518 in 2019, to 190,481 certificates in 2020 (increase by approximately 222% in 2019 and by approximately 395% in 2020). There is a noticeable increase of almost 1500% in the number of certificates issued in 2020 compared to 2018.
- The only standard that has a decreasing trend is ISO 28000: 2007, with a continuous decline in the number of certificates issued.

In general, it is possible to conclude that system standards with a relatively long history of implementation (ISO 9001, ISO 14001, ISO 50001, and others) have a relatively stable number of issued certificates and share percentage. On the other hand, the system standard that has been used for only a few years (ISO 45001, since March 2018) saw a significant increase in the number of certificates issued, which is probably due to the fact that it is the only system standard for the field of occupational health and safety. Finally, it is important to note that indirect global trends can significantly disrupt the certification process; an example is the decline in ISO 28000: 2007 certification, which regulates the field of supply chain and trade, which has been severely disrupted by the COVID-19 pandemic.

4. CONCLUSION

To meet the needs and expectations of stakeholders (customers/users, employees, owners/investors, suppliers/partners and the community) the organization should identify its stakeholders and maintain a balanced response to their needs and expectations, translate the identified needs and expectations into requirements and communicate them in full, and focus on process improvements to provide value for the identified stakeholders. The needs and expectations of users/customers include products and/or services compliant with the requirements, reliable, accessible when needed and suitable for maintenance. Employees expect better working conditions in the workplace, healthcare and security, the possibility of personal development and advancement, as well as an adequate system motivation. Owners/investors expect a quick return on investment, better results, higher market share and higher profits. Business stability, increased influence, more pronounced cooperation and mutual understanding are the main needs and expectations of suppliers/partners.

The needs and expectations of the social community imply that organizations must meet the requirements of the laws and regulations, manage their environmental impacts, rationally use natural resources, assume responsibility for health and safety and manage the impacts of their products, processes and activities on the society as a whole and particularly on the local community. On the other hand, the organization is interested in how to meet in the simplest possible way the stakeholder expectations and the requirements of the standards, but with unique resources, competences, goals, plans, documents, trainings, inspections, improvements, certifications and accreditations. Accordingly, the interest of the organization is to simplify the process of standard implementation but also to make it more cost-effective, which is ensured by recognizing the common requirements and integrating them. A system that integrates the requirements of multiple standards requires more stakeholders because it is often the case that different stakeholders require different management systems, i.e., management systems compliant only with a certain standard or standards. Of course, there are other ways to simultaneously certify two or more standards. In this way, significant savings are achieved in the time and finances required for the implementation and certification of certain standards. On the other hand, the parallel introduction of several standards, i.e. the creation of a single integrated management system, enables the recognition of the needs of a larger number of stakeholders and the improvement of a significantly larger number of basic, auxiliary and management processes at the organizational level.

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THE PERSPECTIVES OF WELLNESS TOURISM DEVELOPMENT IN THE REPUBLIC OF CROATIA

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ABSTRACT

The paper studies the perspectives of wellness tourism development in the Republic of Croatia (hereafter: Croatia). Namely, at present day, tourist movements are becoming more and more popular, and a greater number of tourists are choosing destinations that will best meet their needs. Tourists are looking for more, they do not just want "sun, sea and sandy beach" anymore, they are interested in an active holiday. Specific forms of tourism such as wellness and health tourism, which are slowly developing in Croatia, are becoming more and more popular. Wellness and health tourism refer to travel to a foreign country for health services. Such trips mostly take place because people seek better quality of health services and the most important thing – cheaper prices. When people need any kind of treatment or other health service, they travel to foreign countries for treatment due to the unavailability of that service or the inadequacy of accessible resources in their own country. As for Croatia, the wellness and health tourism don't go that far away in history, most hotels offer wellness and more and more polyclinics that attract tourists are opening, such as dental polyclinics and cosmetic surgery clinics, which are the most sought-after treatments that foreigners seek in Croatia. However, there is a difference between wellness and health tourism, although most of the time they go hand in hand.

Keywords: *wellness tourism, health tourism, tourist travel, marketing in tourism, Croatia*

1. INTRODUCTION

Wellness is a modern word with ancient roots. The key principles of wellness as a preventive and holistic concept can be traced back to ancient civilizations from the East (India, China) to the West (Greece, Rome). In Europe and the United States in the 19th century, various intellectual, religious and medical movements developed in parallel with conventional medicine. With their focus on holistic and natural approaches, self-healing and preventative care, these movements have provided a solid foundation for wellness today. There are two important aspects of this definition. First, wellness is not a passive or static state, but an "active pursuit" that involves intentions, choices, and actions as we work toward an optimal state of health and well-being. Second, wellness is related to holistic health – that is, it extends beyond physical health and includes many different dimensions that should work in harmony. Wellness is an individual pursuit – we are responsible for our own choices, behaviours and lifestyles, but it is also significantly influenced by the physical, social and cultural environment in which we live. Wellness is often confused with terms such as health, well-being and happiness. Although there are common elements between them, wellness differs in that it does not refer to a static state (i.e. being happy, in good health, or a state of well-being). Rather, wellness is associated with an active process of awareness and decision-making that leads to the outcome of optimal holistic health and well-being.

2. THE DESCRIPTION OF WELLNESS TOURISM USERS

It is very difficult to define the users or tourists of wellness tourism due to the fact that many types and different services are offered. The following display shows user profiles according to the type of wellness tourism:

- Traditional SPA - massage, sauna, Turkish bath
  USERS: Elderly people with specific diseases
- Hotels and SPA centres for daily use - cosmetic treatments, aromatherapy, jacuzzi
  USERS: Women, guests with higher incomes and business tourists
- Spa centres for recreation - swimming pools, Turkish bath, jacuzzi, sauna, fitness
  USERS: families with children, couples
- Thalassotherapy centre - inhalation, health problems, hydrotherapy, salts
  USERS: people with asthma and bronchitis and lung diseases
- Holistic centres - yoga, massage
  USERS: women over 35 years old
- Yoga centres - yoga and meditation
  USERS: Employed women over 40 years old
- Medical centres - Operations, plastic surgery, dentistry
  USERS: People over 30 years old (Rašić, 2017)

There is a misconception that wellness travellers are a small, elite and wealthy group of tourists who visit destination spas, health resorts or yoga and meditation. In fact, wellness travellers constitute a much broader and more diverse group of consumers with many motivations, interests and values. GWI (GLOBAL WELLNESS INSTITUTE) identifies two types of wellness travellers:

- Primary wellness traveller: A traveller whose travel or choice of destination is primarily motivated by wellness.
- Secondary Wellness Traveller: A traveller who seeks to maintain wellness while traveling or participates in wellness experiences while taking any type of travel for leisure or business.

It is important to note that primary and secondary wellness trips can be done by the same person on different trips, and these two types of wellness trips reinforce each other. Over time, some secondary wellness travellers will opt for a primary wellness trip as their interest and experience with wellness grows. For example, a person who visits a hot spring during a family vacation (secondary wellness trip) may later be motivated to plan a weekend getaway at a hot spring resort (primary wellness trip). According to Allied Market Research, which analysed the wellness tourism market in 2020 and forecasts until 2030, the size of the global market was estimated at 801.6 billion dollars, and it is predicted that it will reach 1 592.6 billion dollars by 2030. Traveling to places and facilities such as hospitals, spas, wellness centres and more is part of the lifestyle. The tendency of tourists to socialize with the local population and get to know their culture due to a sustainable lifestyle, stress reduction and disease prevention has resulted in an increase in the number of wellness tourists (Škoro, 2021; Vadlja, 2018).

3. WELLNESS AND HEALTH TOURISM – SIMILARITIES AND DIFFERENCES

Wellness tourism is often associated with health tourism - not only by consumers, but also in destination marketing. This confusion is caused by an incomplete understanding of these markets and the inconsistent use of terminologies by destinations, government organizations and promotion agencies. Sometimes the term "health tourism" is also used as a catch to describe many types of medical and wellness services and activities - from open heart surgery and dental care to destination spas and yoga causing further confusion.

In fact, the two sectors mostly operate in separate areas and meet different consumer needs. medical tourism is when a person travels to another country for medical care. For example, each year millions of US residents participate in health tourism. Medical tourists from the United States typically travel to Mexico and Canada, as well as countries in Central America, South America, and the Caribbean. People may travel to another country to receive health care for a number of reasons, including the cost of a treatment or procedure that may be cheaper in another country, the culture of receiving care from a health care provider who shares the traveller's culture and language, and an unavailable or unapproved procedure. The most common procedures people undergo on health tourism trips include dental care, surgery, cosmetic surgery, fertility treatments, organ and tissue transplants, and cancer treatment. Health tourism destinations for US residents from countries include Argentina, Brazil, Costa Rica, Cuba, India, Malaysia, Mexico, Singapore, and Thailand. When reviewing the risks associated with medical tourism, travellers should consider both the procedure and the destination. Foreign facilities may not maintain provider accreditation or licensure, track patient outcome data, or maintain official medical record privacy or security policies. Health tourists should also be aware that drugs and medical products and products used in foreign countries may not be subject to the same regulatory oversight and oversight as in the United States. In addition, some drugs may be counterfeit or otherwise ineffective (for example, expired, contaminated, or improperly stored). Most health tourists pay for their care at the time of service and often rely on private companies or medical services to identify foreign health facilities. Some US health insurance companies and large employers have formed alliances with health care facilities outside the United States to control costs[1]. Adverse complications among medical tourists are similar to those seen in patients receiving medical care in the United States and include surgical incision dehiscence, blood clots, or contour abnormalities after cosmetic surgery. Medical or surgical complications may require follow-up care from a healthcare professional in the United States. Medical tourists should request a copy of their medical records and provide them to health professionals for any further care. Medical tourists should be aware of the additional risks associated with travel while being treated for a medical condition or while recovering from an operation or other procedure. Air travel and surgery independently increase the risk of blood clots, including deep vein thrombosis and pulmonary embolism; travel and operations together further increase the risks. Cabin pressures of commercial aircraft are approximately equal to the outside air pressure at 6 000–8 000 feet above sea level. Medical tourists should not fly for 10 days after chest or abdominal surgery to avoid risks associated with changes in atmospheric pressure. Furthermore, the American Society of Plastic Surgeons advises people who have had cosmetic procedures on the face, eyelids or nose, or who have had laser treatments, to wait 7-10 days before flying. The Aviation Medical Association has published medical guidelines for air travel that provide useful information about the risks of traveling with certain medical conditions[2].

4. WELLNESS TOURISM IN CROATIA: SELECTED EXAMPLES

In 2018, the Institute for Tourism produced a brochure and research on wellness and health tourism in Croatia. In Croatia, the users of wellness and health tourism are predominantly foreigners and come from nearby emission markets, while spa services are used more by local guests. The main motives for these types of trips are physical therapy, relaxation, dentistry and rehabilitation. Wellness tourism in Croatia most often takes place in hotels and spas, and health tourism in surgeries and various clinics and polyclinics. The most frequent guests or wellness users come from Germany, Slovenia, Italy, Austria and even Great Britain.

[1] https://globalwellnessinstitute.org/what-is-wellness/
[2] Allied Market Research, Global Wellness Tourism Market.

Health tourism is mostly used by guests from Italy who come to Croatia primarily for dental procedures, which are much more affordable here than in Italy. Why do tourists choose Croatia? First of all, because of European quality, competitive prices, a beautiful destination and the health insurance of the European Union. Croatia can boast of thermal and mineral springs, sea water and air, rivers and lakes, mountain regions and islands that provide peace and tranquillity as the most important condition for the physical and psychological recovery of a person. Some areas such as Opatija, known as the founder of tourism in Croatia, have been known since 1880 for its therapeutic abilities, which can be found in the climate, vegetation and favourable location by the sea at the foot of the mountains. Given that Croatia is one of the countries that offers high-quality health services at very affordable prices, this will be an additional reason for health trips. The price of services, depending on the content of the treatment or procedure, can be significantly cheaper than the same services and procedures in other Western European countries. Tourist attractiveness and favourable climate, excellent medical service and tourism, the reputation of the medical staff and the price competitiveness of Croatia in the provision of medical services make Croatia an ideal destination for medical tourism. According to a study by Yale and Columbia University, Croatia ranks high among countries in the world when it comes to ecology and cleanliness in the region. Croatia offers attractive locations for experiencing natural and traditional therapies. It also has some of the most reputable healthcare professionals working at the lowest rates in Europe. The capital of Croatia, Zagreb, is the centre of medical practices in the country and the city where the best doctors are located. The city offers several private and public hospitals, dental offices and an increasing number of cosmetic surgery options. The attractive city centre filled with parks and characteristic Austro-Hungarian architecture is a great place to explore on foot. Three five-star luxury hotels, The Westin, The Sheraton and The Esplanade, are centrally located and offer a relaxing stay. About 400 organ transplantations are performed annually in Croatia. Of these, 100 are liver transplants, one of the most complicated and difficult forms of surgery. Clinical excellence ensures that Croatia, and especially Zagreb, where most of these operations are performed, remains at the top of the European league in this regard. The treatment is of such high quality and at lower prices than in the visitors' home countries. As already stated, visitors from neighbouring Slovenia make up a large number of Croatian health tourists, and Zagreb and Italian visitors are an increasingly profitable option for dental procedures. Then, due to its unique microclimate, the island of Lošinj was declared a health resort in 1892. The Croatian nickname for this island is "Island of Vitality" and it is known for its health care provided by health institutions, hotel complexes and local entrepreneurs. The combination of Lošinj's climate and natural attributes in combination with modern health services run by the Veli Lošinj Health Centre create a unique environment for wellness tourism. The centre offers treatment programs for diseases of the respiratory system and asthma, allergies and psoriasis, as well as classic rehabilitation programs for diseases of the locomotor system and neurological diseases. Given that it is well established on the island, its health tourism is complemented by the services offered by many Lošinj hotels. As for Opatija, it is one of the oldest tourist destinations in the region and was declared a climatic health resort in 1889. The next example is the city of Korčula. Its health care and wellness industry has grown in correlation with its expansion. A special institute for modern physical medicine and rehabilitation was developed on the island, which took advantage of rich natural attributes such as wild aromatic and medicinal plants that grow nearby, as well as healing mud and naturally radioactive mineral water that can be found in the Kali bay near the town of Vela Luka[3]. As for spas as wellness attractions, there are several in Croatia that are known for wellness and health tourism. The spa hotel Terme Tuhelj is located forty kilometres northwest of Zagreb in a valley surrounded by green Zagorje hills and beautiful landscapes. This health resort has a historical reputation dating back to Roman times.

[3] Ministarstvo turizma (2014): Nacionalni program – akcijski plan razvoja zdravstvenog turizma.

The benefits of thermal waters and poloid mud created at the source itself are of inestimable importance for the human body. They have a healing effect on rheumatic diseases, bone and joint injuries, gynaecological problems and act as a successful combination in the fight against cellulite. Varaždinske Toplice are the oldest spas in Croatia. The thousand-year-old tradition of using thermal sulphur water and medicinal poloids from a natural source is the basis of the work of the Special Hospital for Medical Rehabilitation in Varaždinske Toplice, with 973 beds in four interconnected facilities. We offer wellness programs, health programs, pensioners' vacations, weekend programs for women and weekend programs for men. Users of the Varaždin Spa can also practice Nordic walking and Pilates, as well as isokinetic diagnostics and exercises on special Cybex devices that are used in the most famous rehabilitation and sports centres in the world. Krapinske Toplice has a long tradition in treatment with therapeutic thermal springs. The private clinic Magdalena, the first special hospital for cardiovascular surgery and cardiology, was established in Krapinske Toplice. Beautiful surroundings, Zagorje hills with traditional offerings, typical Zagorje houses, castles and preserved nature add to the offer of this region. Hotel Aquae Vivae offers comfortable accommodation with its 245 beds. Medical programs are based on the application of natural therapeutic agents (therapeutic hyperthermal water and natural medicinal mud) and the application of all modern procedures of physical medicine and rehabilitation. Also, in Istria, there are Istrian spas near Livada at the foot of Motovun. A modern tourist and therapeutic complex located around the source of St. Stjepan is widely known for the quality and medicinal properties of the water, which successfully helps in the treatment of chronic rheumatic diseases, degenerative diseases of the spine, dermatological diseases, diseases of the upper respiratory tract, various gynaecological diseases and rehabilitation in the postoperative phase of treatment. Thanks to the unique composition of the thermal water enriched with thirteen different minerals and sulphur, and the therapeutic effect of the medicinal mud, the recovery time here is up to three times shorter than usual. For the treatment of the upper respiratory tract, they use sulphur water, which ranks them among the top three institutions of this type in Europe.

5. RESULTS AND DISCUSSION

The research of this thesis was conducted through a survey. The questionnaire was conducted over a period of one month via Google forms, and was published on the social network Facebook on a personal profile. At the beginning, respondents were asked several questions about basic characteristics such as gender, age, level of education and monthly income. 142 male and female respondents responded to the survey. In the research that was conducted, 81.7% of women and 18.3% of men were examined. By age, most respondents were younger and middle-aged, that is, up to 25 years old and from 26 to 35 years old. Most of the respondents have completed undergraduate studies or only high school education. Most respondents are employed, while a few of them are students. Most of them travel one to three times a year to a destination, while a smaller percentage of them travel rarely. As for the motives that motivate them to travel, rest and relaxation are the most represented, followed by natural beauty and scenery. A large number of respondents do not use wellness programs, and if they do, it is offered by the hotel where they are staying. When improving the offer of wellness and health tourism, respondents believe that it is most necessary to modernize the existing offer and expand the existing wellness and health facilities. Natural resources and beauty are also important for the development of a wellness and health program in a destination or country. For the question or statements on the Likert scale, "Rate the offer of wellness services in Croatia", the highest rating was 3. The next statement "Rate the quality of wellness services in Croatia", the highest rating was very good 4. The statement "Rate the prices of wellness services in Croatia " was rated with the highest rating of 4, although the next with a small difference was the rating of 3.

The question "How much the quality of the wellness service affects the price of the wellness service" was rated the highest with a rating of 4, which means that it has a strong influence. Regarding health tourism, the statement "Rate the offer of health tourism in Croatia" was rated the highest with a score of 3. The next statement, i.e., the rating of the employees' expertise, received the highest score of 4, which means that the respondents are satisfied with the employees' expertise in health tourism. The quality of health tourism services was rated the highest 3, as were the prices of services in this form of tourism. The question "How much does the quality of healthcare services affect the price" had the highest score of 3, followed by 4 and 5, which proves that quality strongly affects the price. The statement "I believe that Croatia can compete on the wellness market with its wellness offer" was rated with the highest rating of 3, as was the same statement regarding health services on the health tourism market. According to the presented results, it can be concluded that the hypothesis "The price of wellness and health services in the Republic of Croatia is satisfactory compared to the quality that the Republic of Croatia offers in wellness and health tourism." It can be partially accepted, given that the respondents assessed that the quality strongly affects the price. In order to prove whether the hypothesis is accepted or rejected, a T-test was performed. In this t-test, statements were included in which the respondents rated the price and quality of wellness and health services on a scale of 1 to 5.

	Test Value = 3						
			Significance			95% Confidence Interval of the Difference	
	t	df	One-Sided p	Two-Sided p	Mean Difference	Lower	Upper
Rate the quality of wellness services in Croatia from 1 to 5.	10,629	141	<,001	<,001	,648	,53	,77
Rate the quality of wellness services in Croatia from 1 to 5.	5,097	141	<,001	<,001	,380	,23	,53
Rate the quality of wellness services in Croatia from 1 to 5.	3,543	141	<,001	<,001	,275	,12	,43
Rate the quality of wellness services in Croatia from 1 to 5.	2,410	141	,009	,017	,218	,04	,40

Table 1: T- Test – One-Sample Test

6. CONCLUSIONS

As the concept of wellness tourism in the Republic of Croatia is a relatively new concept, the development of this type of tourism has greatly increased. This type of tourism is well recognized by tourists and their number increases every year. In addition to this term, health tourism also appears, which is also well recognized for its quality and lower prices in the Republic of Croatia than in the domicile countries of tourists who are interested in such services. In Croatia, there is still a lot of room for the development of these types and the opening of accommodation and new services for users in order to make the offer more competitive and better. Most wellness programs still take place in hotels, while more independent large wellness centres should be opened. Many local residents still cannot afford this type of service, but the point is to attract as many foreign tourists as possible who are ready to spend their money. As shown in the research discussion according to the results, the hypothesis of this paper "The price of wellness and health services in the Republic of Croatia is satisfactory compared to the quality that the Republic of Croatia offers in wellness and health tourism" can be partially accepted, given that the price strongly affects the quality and vice versa. Trends in tourism are growing and changing every day, and the offer should be expanded both in the wellness program and in health tourism. Renovation of existing facilities is needed, some of which have not been adapted for a long time, for example the Varaždin spa. Also, it is necessary to build new wellness centres that would serve this purpose exclusively and that would offer attractive programs for wellness users who follow various trends. The research concluded that the majority of wellness programs are located on the coast, so attention should be paid to the opening of the wellness offer on the continent, thus combining wellness, health and continental tourism. This paper can be used for further research as trends in tourism grow.

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BUSINESS CONTRIBUTION OF KEY DIGITAL TECHNOLOGIES TO THE GOALS OF DIGITAL BUSINESS TRANSFORMATION

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ABSTRACT

Key digital technologies such as big data, social media, cloud computing and mobile devices are increasing the demands of customers and employees given their business potential in the processes of digital business transformation. The purpose of this paper is to assess the contribution of these technologies to the goals of digital business transformation such as customer centricity, effective knowledge worker, operational excellence and IT excellence. Digital capability framework and corresponding digital capability maturity model are important tools to support management in the analysis of the contribution of digital technologies to the goals of digital transformation of any company. The specified framework and maturity model are used for research purposes in this paper for a specific company.
Keywords: *Digital Business Transformation, Key Digital Technologies, Business Contribution of Key Digital Technologies*

1. INTRODUCTION

In the context of the digital economy, the strategy of information technology (next IT) is changing rapidly. IT becomes a strategic partner for business and influences the development of new products and services and strengthens the competitiveness of companies (Urbach et al., 2017). Companies focus on customers and meeting their requirements and managing the customer experience.The global business transformation (Fourth Industrial Revolution) is changing the ways we produce and communicate and fosters business progress. Key digital technologies as upgrades to information and communication technologies include: mobile connectivity, cloud computing, social networking, big data (Spremić,2017). Managing digital transformation is a complex process whose focus is to implement digital strategies within companies, develop an ecosystem and create value for customers, and continuously increase the digital capability of companies (Hinterhuber et al.,2021). Many studies have been conducted in the literature on how companies implement their digital strategies and what their main goals are. The answers are mainly: better user experience; greater business efficiency; improved decision-making; more innovations and business transformations (Kane et al.; 2015). The challenges of digital technologies with regard to digital transformation goals are shown in Table 1 (Uhl et al., 2016).

Table following on the next page

Digital transformation goals	Mobile Connectivity	Cloud Computing	Big Data	Social Media
Customer Centricity	optimizing sales channels; developing customer experience, improving the offer	online services enable different interactions between the customer and the company	faster analysis of customer requirements and desired experiences	involving customers in design and product development; offerings are customized
Effective Knowledge Worker	improving the communication between virtual teams	centralized cloud dana storage	data mining; knowledge management	improving the communication between virtual teams
Operational Excellence	standardization of the business processes	building end-to-end business process model	monitoring the process performance	enhanced collaboration between stakeholders
IT Excellence	managing the new technologies	improving the IT service delivery	tools that support the analysis of unstructured data	higher security; agility in meeting customer requirements

Table 1: Challenges of digital technologies with regard to digital transformation goals

The purpose of this paper is to assess the contribution of key technologies to the goals of digital business transformation such as customer centricity, effective knowledge worker, operational excellence and IT excellence. Digital capability framework and corresponding digital capability maturity model are important tools to support management in the analysis of the contribution of digital technologies to the goals of digital transformation of any company. The specified framework and maturity model are used for research purposes in this paper for the case of the production company. Chapter 2 describes the features of digital business transformation goals such as customer centricity, effective knowledge worker, operational excellence and IT excellence. Chapter 3 describes the business values of key digital technologies such as social networks, big data, cloud computing and mobile connectivity and their importance for the success of certain business functions along the value chain such as product development / innovation; supply relationship management; service delivery; customer relationship management; human resources. Chapter 4 describes the results of assessing the contribution of key digital technologies to the goals of digital business transformation using the digital capability framework and the corresponding digital capability maturity model for the case of the production company.

2. DIGITAL BUSINESS TRANSFORMATION GOALS

To provide a general understanding for this paper, we briefly outline the key goals of digital business transformation (Figure 1).

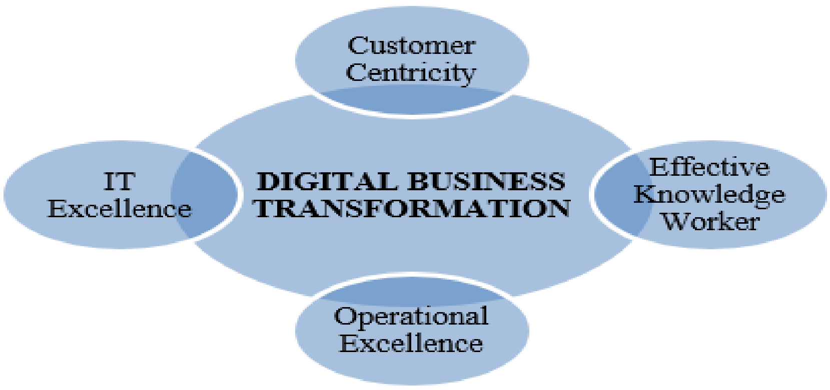

Figure 1: Digital business transformation goals

2.1. Customer Centricity

In the digital age, customer experience has become a key factor in all transformation processes by placing the customer at the center of business strategies. This has led to a change in customer behaviour, as they are becoming more informed and more communicated, with a higher expectation for digital services, regardless of the channel or industry. According to Fader, P. 2020., customer-centricity is “a strategy to fundamentally align a company’s products and services with the wants and needs of its most valuable customers”. In fact, digitalization adds value to the customer in an innovative way. Through information technology, companies collect data about their customers' needs, wants, and preferences, then use it to individualize offers and simplify processes for a better customer experience.The goal of a customer-centric company is to maintain a long-term relationship with more profits by focusing on personalized solutions to solve problems and deliver value. Thus, understanding customer needs and problems is the new standard for achieving competitive advantage and offer firms great opportunities to grow. This goal is centered on customer value and on the best possible interaction between the customer and the company. As an example, digital marketing, allows users to have intuitive access to important information or processes wherever they are (Uhl et al., 2016). Which impact the level of added value in customer-business interactions. Many strategic decisions regarding the evolution of customer interaction are to be managed. Companies are encouraged to consider the potential new benefits created in their customer experience by digital changes in the customer journey. In particular, consumer-centric service industries need to realize a new strategic value at the edge, where consumers are seen as co-creators of value, organizers of knowledge, and important factors of production.

2.2. Effective Knowledge Worker

The company's value chain is facing various transformations, and diverse organizational decisions were updated. Companies began to focus on their employees, culture, talent, skills, and leadership. The need to develop a collaborative work environment and ensure that the project is adequately resourced becomes essential. As a result, the human element is affected by the new corporate culture, especially when companies create a more flexible and employee-friendly work environment and improve knowledge sharing through office virtualization. Effective knowledge worker goal involves cross-functional and transnational cooperation, mutual learning, high employee productivity, a common culture with accepted values and effective knowledge sharing, and decentralized decision-making processes (Uhl et al., 2016). Employees are often evaluated from a maturity perspective, where their roles, expertise, and skills are carefully evaluated. This allows companies to categorize themselves into a digital maturity category and helps them navigate their transformation in a structured way. Further considerations are involved regarding the necessary changes in the company's culture, which are aimed at adjusting it to work with the new technologies rather than imposing these technologies on employees (Ismail, et al, 2017).Companies are looking to create the right digital mindset and help employees to adapt quickly to the changes. This cultural transformation is considered one of the most challenging aspects experienced in transformational change programs. Yet, it is also considered a key driver of successful technology-driven business transformations. Furthermore, digital technologies provide mobility and global connectivity opportunities that allow for immediate interaction and access to a wide range of data and computing power. The value of IT can be summarized in informational and transactional benefits such as faster and easier access to information, reduced operating costs, or improved employee productivity.

2.3. Operational Excellence

The impact of operational excellence on the company's value system is also determined. Operational excellence industrializes business processes, minimizes interfaces or integration gaps, and ensures full transparency on the performance of key services. It involves not only collaboration within the company, but also with external partners and suppliers (Uhl et al., 2016). Therefore, all key stakeholders need to be involved in understanding the problems the organization is facing and in finding solutions. Transformation of the operational element targets key business operations and processes as companies seek to streamline their operations and integrate their processes with digital performance management. In operations transformation, companies are increasing the diffusion of new digital technologies to improve decision-making. In addition, there has also been a focus on improving operational effectiveness and efficiency through good management of information needs, as well as on strategic differentiation from competitors.The operational drivers are also linked to the reasons why companies are striving to transform digitally, in order to gain efficiency or improve closely related productivity. In addition, many companies are seeking to benefit from the innovations and competitive differentiation that digital transformations bring (Ismail, et al, 2017).The operational dimension of strategic decisions cannot be neglected in digital transformation projects and mainly includes choices about necessary operational changes and adaptations of current business processes. Companies need to make decisions about which processes will be affected by the integration of new technologies. Operational agility and efficiency can be improved by identifying and addressing vulnerabilities. There are also maturity models that help companies assess the state and agility of their current processes and improve their digital operations.

2.4. IT Excellence

New technologies driving IT excellence include real-time access to important business data, stability, digital security, agility, and dynamic functionality (Uhl et al., 2016)**.** Companies exploit digital technologies beyond their borders, which ultimately impacts their supply chains, allowing for novel ways of interaction with their industry network. Although deploying these technologies enables strategic alliances, partnerships, and complex relationships to be built within the wider network, this can also lead firms to cut away unnecessary layers in the value system (Ismail, et al, 2017). As a result of this increase in software functionality. Currently, the emergence of smart factories and national initiatives such as Industry 4.0, which may be the biggest global trend in manufacturing, require cloud-based systems and networked machines to optimize production. The current term "Internet of Things" takes tracking activities in logistics to a whole new level, as it eliminates the RFID scanning process and relies on the interaction between objects.

3. BUSINESS VALUE OF KEY DIGITAL TECHNOLOGIES ALONG THE VALUE CHAIN

3.1. Social Media

Nowadays, social media represents one of the key drivers of IT in business transformation. It has fundamentally changed the way we communicate, collaborate, consume and create (Aral, Dellarocas and Godes, 2013).Social media utilize interactive platforms based on Internet technologies that allow the users to create, discuss and share updated information. It can be defined as “the Internet-based applications that manage consumer-generated content” (Uhl et al., 2016). This covers a wide range of applications that allow users to network, publish and share content on the Internet in real-time (e.g., Linkedin, Twitter, Facebook…) (Uhl et al., 2016). However, social media is becoming a part of our daily lives.

Therefore, many companies are starting to include their customers in the process of developing new products and or services, by asking them about their needs and preferences. The Data collected from social media platforms contains useful knowledge that helps in business decisions (Yang, 2022).Table 2, outlines the different applications of social media in different business functions.

Business Function	**Application of Social Networks**
Product development / Innovation	• Solicit ideas, opinions, and feedback to adapt existing and/ or develop new products and services.
Supply Relationship Management (SRM)	• Add a social layer to supply chain management; • Hire "virtual" contractors ; • Build purchasing coalitions.
Service delivery	• Enhance collaboration on projects and service engagements ; • Co-create and share knowledge; • Collaborate on documentation.
Customer Relationship Management (CRM)	• Listen to customer concerns; • Transfer support tasks to the community; • Spread best practices ; • Support and solve problems.
Human Resources	• Promote company among potential employees; • Gather information on job candidates; • Train employees; • Social networks.

Table 2: The perceived value of social networks along the value chain (source: Adapted from Uhl et al., 2016)

Furthermore, businesses can interact and reach their target customers more easily. So, they can be closer to the organizations via many platforms (e.g., Linkedin, Facebook, Instagram, and Twitter), which strengthens relationships between all the stakeholders.Besides interacting with customers, the transformative power of social media has opened up a new world of opportunities and challenges for every part of the business and involves all business functions, from marketing and supply chain to finance and human resources management (Aral, Dellarocas and Godes, 2013).Social networks can foster business progress by encouraging internal and external cooperation in the upstream and the downstream of supply chains (Yang, 2022). Social media network sets up the supply chain relationships between the stakeholders. For instance, sharing sales forecast data through social networks is useful for both the manufacturer and the consumer, it helps manufacturers to reduce stocks and optimize logistics operations (Yang, 2022). In addition to supply chain improvements, Human resource management is also influenced by social networks. Notably, the identification of needs and the design of new job roles within the team, the recruitment and training of new employees, meeting management (e.g., Skype, Google meet), and the management of employee performance (Yang, 2022).

3.2. Big Data

Today, big data has become a key element in both IT and business domains. It is relevant for many companies and organizations in every sector. Big data gives companies a clearer understanding of their consumers' expectations and needs, in order to offer them specific products or services with a higher value. and that's through a huge amount of data collected and analyzed every day (Fernández-Rovira et al., 2021).According to (Hashem *et al.*, 2015), Big data is "a term utilized to refer to the increase in the volume of data that are difficult to store, process, and analyze through traditional database technologies.

The nature of big data is indistinct and involves considerable processes to identify and translate the data into new insights”. In this sense, big data is “a dataset whose size is beyond the ability of typical database software tools to capture, store, manage and analyze” (Manyika et al., 2011) The analysis and management of these data **require** certain expertise in many disciplines notably (statistics, mathematics, IT, etc.) and this, to be able to interpret and use the outcomes effectively (Uhl et al., 2016).Big data has great potential to be employed in many functions for more efficient processes. For instance, in marketing and sales. Through the data collected from consumers' mobiles, companies can customize and adapt advertising for each category of customer. This will reduce costs and increase the chances of reaching the right customers. Therefore, Big data is perceived as a key driver of business transformation that can drive for a competitive advantage. Uhl *et al.*, 2016. introduced the contribution of big data as a key technology to the four digital transformation goals (Table 1).

3.3. Mobile Connectivity

According to Uhl et al. 2016., mobile connectivity refers to the use of mobile devices and communication technologies such as smartphones, laptops, and mobile internet. In the employee context, connectivity is defined as “the ability to have flexible access to the company or external data necessary for productivity” (Uhl et al., 2016). With the health crisis and lockdown, we have noticed that most companies have adopted remote working for their employees, which was previously difficult to do outside the company's offices because of the use of internal networks. Now, thanks to new technologies, everyone can access the data (everywhere and at any time). In the customer context, businesses are trying to take advantage of mobile applications to enhance the customer experience in a variety of ways and in different sectors. Notably, In the hospital sector, instead of going to the hospital, patients receive their results and analyses on their smartphones in real-time, and they can also make appointments with a single click. As for the delivery service, the customers have access to different restaurants, supermarkets, etc., and they can make orders, and pay directly through their phones. So, we can clearly see that mobile connectivity is becoming more and more indispensable in our daily lives and is also an important part of the digital transformation technologies: *mobile technologies enable the goal of digital transformation and offer a transparent interaction with the customer;work mobility and digital collaboration are transforming both the economy and society across the world;the increase of e-commerce platforms based on smartphones or tablets.* The current state of technology integration and the use of mobile devices in business is based on business needs and is focused on managing business processes in the most efficient way possible (Schwertner, 2017). Uhl *et al.*, 2016. introduced the contribution of mobile connectivity as a key technology to the four digital transformation goals (Table 1).

3.4. Cloud Computing

Cloud computing can be defined as “the application and use of IT products and services which are provided and maintained through a network” (Uhl et al., 2016), in other words, is “Internet-based computing which provides storage and software access” (Sivarajah et al., 2020). Cloud computing enables the development of energy-efficient data centers, for the effective creation, retrieval, and dispersal of information. For businesses, cloud computing offers greater flexibility, given the possibility of ordering and delivering services in a shorter timeframe and paying for them at a variable cost (Uhl et al., 2016). It also allows employees to work, by providing them access to real-time information and facilitating efficient use of resources (Sivarajah et al., 2020). Thus, the most important benefits of cloud computing are the reduction of costs, technical staff, and effort (Schwertner, 2017).Uhl *et al.*, 2016. introduced the contribution of cloud computing as a key technology to the four digital transformation goals (Table 1).

4. BUSINESS CONTRIBUTION OF KEY DIGITAL TECHNOLOGIES TO THE GOALS OF DIGITAL BUSINESS TRANSFORMATION: CASE STUDY AT THE PRODUCTION COMPANY

The digital capability framework and the corresponding maturity model are used in this research (shown in Figure 2) (Uhl and Gollenia, 2012; Uhl et al., 2016). The framework is used to assess the contribution of key digital technologies (social media; mobile connectivity; cloud computing; big data) to the digital transformation goals (customer centricity; effective knowledge worker; operational excellence; IT excellence). The maturity model contains 5 levels of maturity: level 0 (Deficient); level 1 (Basic); level 2 (Defined); level 3 (Advanced); level 4 (Optimized)(ISO/IEC 15504–5:2012; Kenett and Baker, 2010; Uhl et al., 2016).

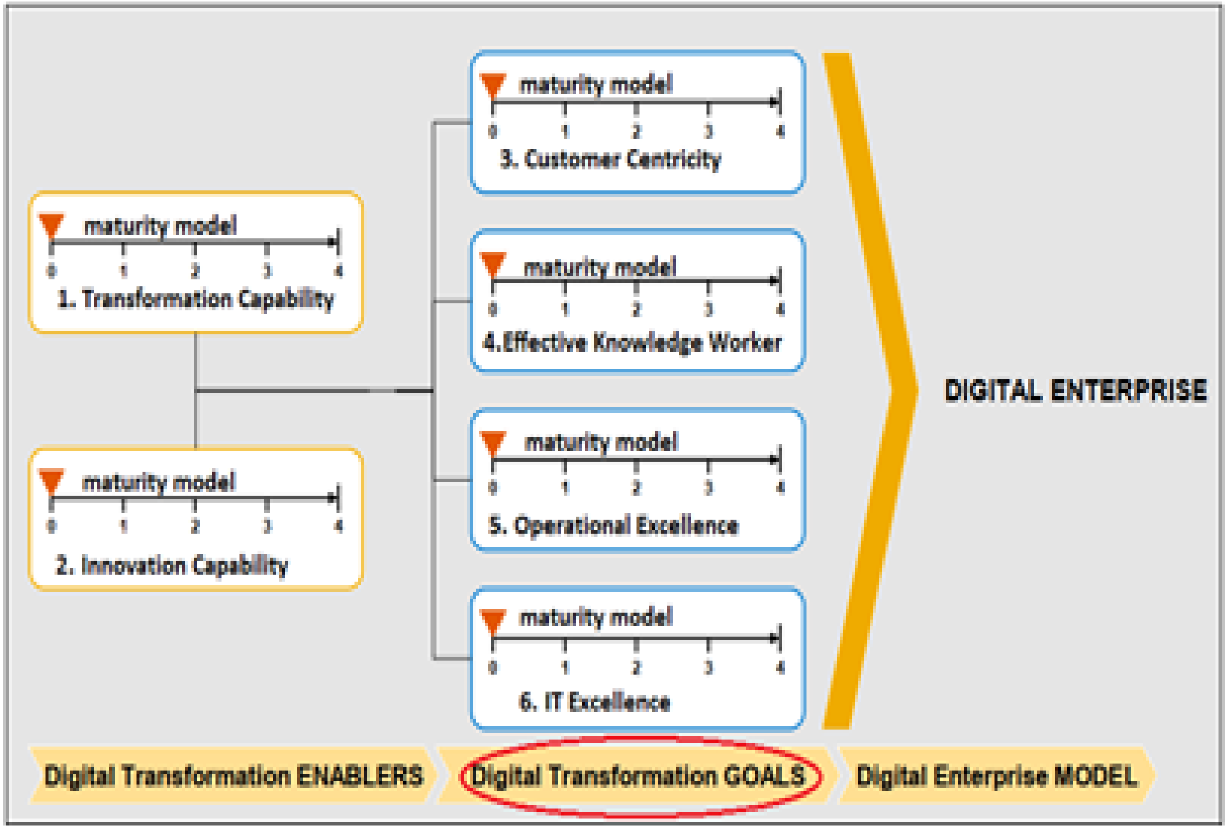

Figure 2: The digital capability framework and corresponding maturity model

The results of the estimated contribution of key digital technologies such as social networks, mobile connectivity, cloud computing and big data to the goals of digital business transformation such as customer centricity and operational excellence are described below (Tables 3 to 10). The results of the contribution of these key digital technologies to other goals of digital transformation such as effective knowledge worker and IT excellence are not shown in detail in the tables due to limitations in the scope of work. However, such results are shown together with all other results in Figure 3. The method of interviews with business and IT managers was conducted in the case of a production company in order to obtain the results of assessing the contribution of digital technologies to the goals of digital business transformation. For each research question about the possible business contribution of key digital technologies to the goals of digital transformation, answers were offered according to maturity levels from 1 to 5. Respondents assessed the level of maturity, and the results of such assessment are marked in a special color in the tables.

GOAL: Customer Centricity	**MATURITY LEVEL DEFINITIONS**				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Systems; Customer Relationship; Advertising/ Marketing **Research questions on the contribution of Social Media to the goal: *Customer Centricity:*** 1. Does the company use social media to communicate with customers? 2. Does the company involve clients in product design and development through online surveys and exchange of ideas? 3. Can offers be tailored to customer needs?	The company does not use social media to communicate with customers.	The company partially uses social media to communicate with customers.	The company mostly uses social media to communicate with customers.	The company fully uses social media to communicate with customers. The company collects customer data for the purpose of analyzing the user experience.	The company fully uses social media to communicate with customers. The company allows its customers to participate in product development through online surveys. Offers can be customized depending on social media analytics and are proposed directly to the client.

Table 3: Assessment of potential contribution of Social Media to the goal of digital transformation: Customer Centricity

GOAL: Operational Excellence	**MATURITY LEVEL DEFINITIONS**				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Processes; Technologies **Research questions on the contribution of Social Media to the goal: *Operational Excellence:*** 1. Does the company use social media to improve operational excellence? 2. Does the company use the potential of social media to improve cooperation between stakeholders?	The company does not use social media to improve operational excellence.	The company partially uses social media to communicate with suppliers and partners.	The company mostly uses social media to communicate with suppliers and partners.	The company fully uses social media to communicate with suppliers and partners.	The company fully uses social media to collaborate with suppliers and partners.The company is exploring new opportunities and potential of social networks for the purpose of better forms of cooperation between stakeholders.

Table 4: Assessment of potential contribution of Social Media to the goal of digital transformation: Operational Excellence

GOAL: Customer Centricity	MATURITY LEVEL DEFINITIONS				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Systems; Customer Relationship; Advertising/Marketing **Research questions on the contribution of Mobile Connectivity to the goal: *Customer Centricity:*** 1. Does the company use mobile connectivity to communicate with customers? 2. Does the company provide customers with timely and quality support through mobile connectivity? 3. Does the company optimize sales processes and develop a better offer to customers?	The company does not use mobile connectivity to interact with customers.	The company partially uses mobile connectivity to communicate with customers.	The company mostly uses mobile connectivity to communicate with customers.	The company fully uses mobile connectivity to communicate with customers. The company uses mobile connectivity to respond to customer requests in the shortest possible time, provide quality customer support and develop a better customer experience.	The company uses mobile connectivity for the purpose of optimizing sales channels, developing new mobile business channels to sell products and improve the offer to customers.

Table 5: Assessment of potential contribution of Mobile Connectivity to the goal of digital transformation: Customer Centricity

GOAL:Operational Excellence	MATURITY LEVEL DEFINITIONS				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Processes; Technologies **Research questions on the contribution of Mobile Connectivity to the goal: *Operational Excellence:*** 1. Does the company use mobile connectivity to improve operational excellence? 2. Does the company use the potential of mobile connectivity to improve cooperation between stakeholders? 3. Does the company use the potential of mobile connectivity to standardize business processes and more efficient cross-channel interaction with third parties?	The company does not use mobile connectivity to improve operational excellence.	The company partially uses mobile connectivity to communicate between departments and stakeholders.	The company mostly uses mobile connectivity to standardize business processes and better mobile collaboration opportunities.	The company fully uses mobile connectivity to standardize business processes and more efficient cross-channel interaction with third parties.	Mobile connectivity enhances operational excellence in the context of standardized business processes that need to be efficient in order to achieve business goals at the lowest cost and error. The company is fully connected to all its stakeholders.

Table 6: Assessment of potential contribution of Mobile Connectivity to the goal of digital transformation: Operational Excellence

GOAL:Customer Centricity	MATURITY LEVEL DEFINITIONS				
	Level 0 (Deficient)	Level 1 (Basic)	Level 2 (Defined)	Level 3 (Advanced)	Level 4 (Optimized)
Key criteria for maturity level definitions: Systems; Customer Relationship; Advertising/ Marketing **Research questions on the contribution of Cloud Computing to the goal: *Customer Centricity:*** 1. Does the company use cloud computing to communicate with customers? 2. What is the contribution of cloud computing in supporting various forms of customer-company interaction?	The company does not use cloud computing to communicate with customers.	The company partially uses cloud computing to communicate with customers.	The company mostly uses cloud computing. Collected customer information is updated to improve communication.	The company fully uses cloud computing. One standardized platform and online services enable different interactions between the customer and the company.	Applications are interconnected on the same databases within the cloud. The company has greater agility in meeting customer needs. Interactions with customers allow the company to gather a variety of information for the purpose of creating customized offers.

Table 7: Assessment of potential contribution of Cloud Computing to the goal of digital transformation: Customer Centricity

GOAL:Operational Excellence	MATURITY LEVEL DEFINITIONS				
	Level 0 (Deficient)	Level 1 (Basic)	Level 2 (Defined)	Level 3 (Advanced)	Level 4 (Optimized)
Key criteria for maturity level definitions: Processes; Technologies **Research questions on the contribution of Cloud Computing to the goal: *Operational Excellence:*** 1. Does the company use cloud computing to improve operational excellence? 2. Does the company use the potential of cloud computing to building end-to-end business process model?	The company does not use cloud computing to improve operational excellence.	The company partially uses cloud computing to improve operational excellence.	The company mostly uses cloud computing to reduce costs, implement more applications, automate and integrate more business processes.	The company fully uses cloud computing to improve operational excellence. Faster implementation of new operational requirements. Gradual development of end-to-end business process model.	Cloud computing is used in all business segments. The processes are fully integrated. The implementation of end-to-end monitoring to improve processes and services is carried out to the maximum.

Table 8: Assessment of potential contribution of Cloud Computing to the goal of digital transformation: Operational Excellence

GOAL:Customer Centricity	**MATURITY LEVEL DEFINITIONS**				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Systems; Customer Relationship; Advertising/ Marketing **Research questions on the contribution of Big Data to the goal:** ***Customer Centricity:*** 1. Does the company use big data to improve customer centricity? 2. Does the company develop big data management for the purpose of faster analysis of customer preferences and requirements and faster delivery of products customized according to their nedds?	The company does not use big data to communicate with customers.	The company partially uses big data to communicate with customers.	The company mostly uses big data to communicate with customers..	The company is developing big data management for the purpose of faster analysis of customer preferences and requirements	The company uses big data for faster delivery of products customized according to customer needs.

Table 9: Assessment of potential contribution of Big Data to the goal of digital transformation: Customer Centricity

GOAL:Operational Excellence	**MATURITY LEVEL DEFINITIONS**				
	Level 0 (Deficient)	**Level 1 (Basic)**	**Level 2 (Defined)**	**Level 3 (Advanced)**	**Level 4 (Optimized)**
Key criteria for maturity level definitions: Processes; Technologies **Research questions on the contribution of Big Data to the goal:** ***Operational Excellence:*** 1. Does the company use big data to improve operational excellence? 2. Does the company use the potential of big data technology to monitor process performance, detect variations in business processes, and initiate process optimization?	The company does not use big data to improve operational excellence.	The company partially uses big dana to improve operational excellence.	The company mostly uses big data. Reports are created faster, better and more accurately in order to improve business processes.	The company fully uses big data. The system supports the analysis of large amounts of data in real time. Using big data, the company monitors the performance of business processes and conducts faster detection of variations in production or other processes.	By using big data, the company analyzes variations in the execution of business processes in a faster and better way, and based on the collected information, it supports decision-making on the optimization of business processes.

Table 10: Assessment of potential contribution of Big Data to the goal of digital transformation: Operational Excellence

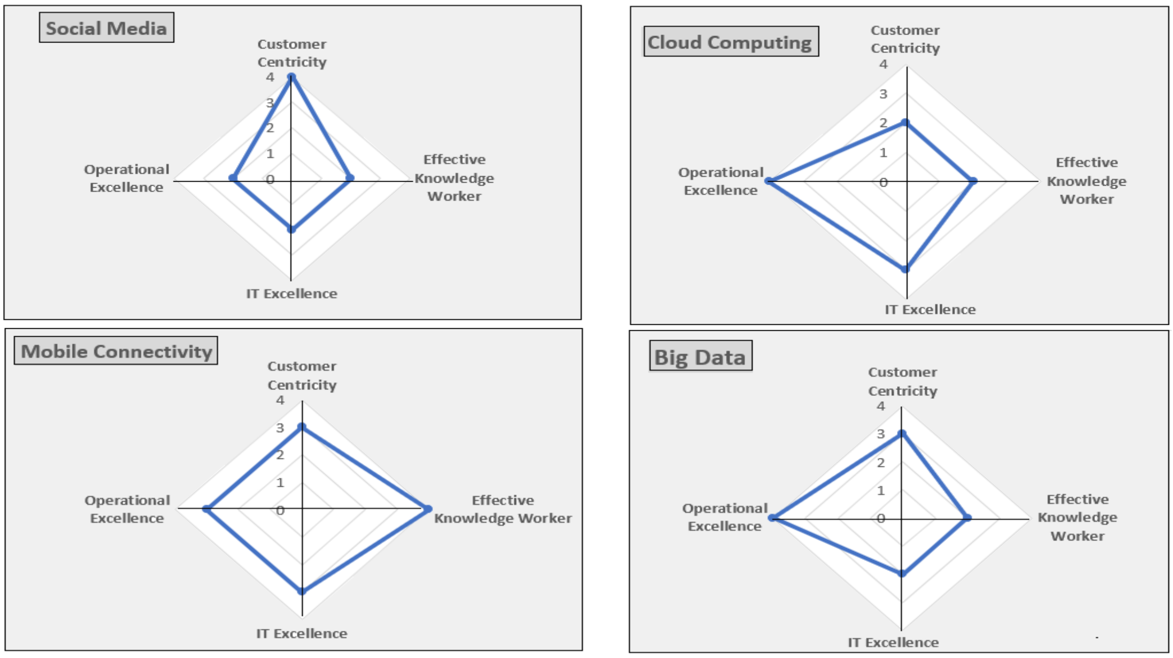

Figure 3: Business contribution of key digital technologies to the goals of digital business transformation

5. CONSLUSION

This research assesses and analyzes the business contribution of key digital technologies (social media, mobile connectivity, cloud computing and big data) to the goals of digital business transformation using the digital capability framework and the corresponding digital capability maturity model for the case of the production company. The results of the estimated contribution of key digital technologies to the goals of digital business transformation such as *customer centricity and operational excellence* are described in tables 3 to 10. The results of the contribution of these technologies to other goals of digital transformation such as *effective knowledge worker and IT excellence* are not shown in detail due to limitations in the scope of work. Accordingly, Figure 3 shows the summary results of the business contribution of key digital technologies for all digital transformation objectives. In the case of the investigated company, social media contribute the most to the goal of customer centricity, while cloud computing, big data and mobile connectivity contribute the most to the goal of operational excellence. According to the summary results, managers can define improvement priorities depending on the business goals. In general, digital capability framework and maturity model helps managers to assess the effectiveness of digital technologies in the process of digital business transformation, define priorities in the necessary improvements in order to achieve a competitive advantage. The main contribution of this research is in creating the initial steps to design a methodology that will help create a digital enterprise in different business cases.

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ENERGIEWENDE: ENERGY PLAN IN GERMANY

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ABSTRACT

Energiewende is Germany's planned transition to a low-carbon, nuclear-free economy. The German Energiewende is comprehensive since it also started improving other areas and sectors, such as transportation, food consumption, manufacturing, and corporate social responsibility (Kreuz and Ploß, 2019). It is also recognized as the most significant tenet of Germany's plan to protect or mitigate the effects of climate change. The 1970s environmental movements gave Germany the push it needed toward renewable energy. In the 1970s, opponents of nuclear power created the term "Energiewende" to show the possibility of an alternative energy source. The word "energy revolution," or "Energiewende," did not just start to circulate recently. The Institute for Applied Ecology in Germany utilized it for the first time in a study in 1980 (Paul, 2018). That ground-breaking work may have been the first to make the case that economic growth is achievable with less energy use—a concept later explored in numerous books, including Factor 4 from 1998. Previous works, including Limits to Growth (1972), mostly offered cautionary tales rather than concrete remedies. As a result, the German government has been urged to make more investments in areas to help achieve their set energy goal before the start of Energiewende. For instance, it was encouraged to invest in phasing out coal-fired power plants by 2030 and suspending its nuclear power plans by the end of 2022 to meet its energy goals. To lessen Germany's reliance on the Russian fossil fuel supply, the government will need to enhance its use of renewable energy. It was also suggested that the country continue building the two liquid natural gas terminals to increase the nation's natural gas reserves in Brunsbüttel and Wilhelmshaven, respectively, to help in the achievement of the goals. It was also recommended that Germany's government

Keywords: *Energiewende, energy transition and emission, renewable energy*

1. INTRODUCTION

Germany's move to a nuclear-free, low-carbon economy is known as the "Energiewende" or "energy transformation." Energiewende is Germany's planned transition to a low-carbon, nuclear-free economy. The German Energiewende is comprehensive since it also started improving other areas and sectors, such as transportation, food consumption, manufacturing, and corporate social responsibility (Kreuz and Ploß, 2019). Other nations, like Sweden and Norway, have already started similar energy revolutions. It is also recognized as the most significant tenet of Germany's plan to protect or mitigate the effects of climate change. Additionally, Germany's foreign policy and its participation in international development and cooperation (foreign aid) with international partners reflect the policies underlying the German Energiewende (Rechsteiner, 2020). However, the issue is much more complicated than just phasing out nuclear energy and boosting renewable energy sources in the power industry. However, the strategy now goes far beyond increasing renewable energy while phasing out nuclear power because the nation wants to reduce climate-harmful greenhouse emissions to almost zero by the middle of the century as part of the European Union's drive toward climate neutrality. All economic sectors must adapt, and cooperation within Europe and internationally is widely recognized as Germany’s initiative to lower greenhouse gas emissions without relying on nuclear power is known as the Energiewende, or "energy turnaround." Even as the coronavirus pandemic dominated public worries, it has had widespread public support and cross-party support. Countries from various regions vowed to reduce emissions in the historic Paris Climate Agreement to slow global warming. The European Union and the German government have both been ardent advocates for bold international action. By 2050, the EU hopes to achieve climate neutrality and is leading the energy transition with its "Green Deal" policy agenda. As a pioneer, member state Germany's energy transition is closely scrutinized for valuable insights on weaning a significant economy off fossil fuels (Westphal, 2018). The Energiewende, a massive national initiative that began as a small-scale anti-nuclear and environmental campaign, has significantly impacted both business and society. Environmentalists usually point to Germany as an example of how a developed nation might abandon fossil fuels without jeopardizing economic development. The German experience, according to critics, shows that such transformation is costly for consumers and businesses and doesn't always reduce carbon emissions. The Energiewende has spent a lot of time concentrating on the electrical industry. Germany has decided to phase out coal by 2038, but it may do it sooner because of new climate targets and high CO2 prices. Thanks to substantial financial assistance for wind and solar energy, renewable energy sources provided more power compared to fossil fuels for the first time in 2020. Although businesses, banks, and utilities are quickly acquiring control of these installations, many of them are still owned by individuals and cooperatives. Integrating this dispersed, small-scale, weather-dependent generation into the power system, for instance, with the power grid, presents several challenges. Germany is also expanding the scope of its energy transition by establishing national CO2 pricing for fuels used for transportation and heating and emissions reduction targets for every industry subject to substantial climate laws (Kreuz and Ploß, 2019). The country's automakers, freight businesses, and steel producers will be significantly impacted by its plan to run business, transportation, and buildings virtually entirely on renewable energy. Green hydrogen is destined to displace conventional hydrogen as the primary decarburization alternative in heavy industry and aviation, where it is exceedingly difficult to cut emissions. Germany, the fourth-largest economy in the world, still has some ways to go before its energy consumption can be decreased, and efficiency increased. And the financial sector is just now starting to contribute significantly to a clean-energy economy (Millsap, 2018). Germany has environmental objectives, yet it lags in some vital regions. Even if grid expansion and the use of renewable energy are lagging, truck and passenger car emissions continue to be high. Germany, though, is on track to stop using nuclear power by 2022. The electrical grid's dependability has already been compromised by the shutdown of a number of big nuclear reactors. This summary of Germany's generational Energiewende project provides links to CLEW's in-depth reporting for anyone interested in learning more.

2. HISTORY OF THE PLAN

The 1970s environmental movements gave Germany the push it needed toward renewable energy. Churches were a vital element of the energiewende, and conservatives and liberals embraced energiewende talks. In the 1970s, opponents of nuclear power created the term "Energiewende" to show the possibility of an alternative energy source. The word "energy revolution," or "energiewende", did not just start to circulate recently. The Institute for Applied Ecology in Germany utilized it for the first time in a study in 1980 (Paul, 2018). That ground-breaking work may have been the first to make the case that economic growth is achievable with less energy use—a concept later explored in numerous books, including Factor 4 from

1998. Previous works, including Limits to Growth (1972), mostly offered cautionary tales rather than concrete remedies. One of the earliest attempts to comprehensively answer was the Energiewende, which combined renewable energy with energy efficiency. The subtitle of Energiewende, a book that was published in 1982, is "Growth and Prosperity Without Oil and Uranium." The Institute of Applied Ecology had recently been established with support from research-funding Protestant organizations and environmental organizations (such as Friends of the Earth). Since conservatism and conservation are still intimately related in Germany, conservative politicians cannot be considered against renewable energy sources, as is the case elsewhere (Clean Energy Wire, 2018). The German Wind Energy Association (BWE) was led for eleven years by Peter Ahmels, a notable supporter of renewable energy and Christian Democrat (CDU) member. To combat nuclear power, the Energiewende movement was born out of the anti-nuclear power movement of the 1970s. The movement's inclusiveness—from the beginning, conservatives and environmentalists worked together—has contributed to its endurance over the past few decades (Paul, 2018). The Energiewende was born out of the 1970s nuclear power opposition movement. In 1973, the village of Wyhl, which is situated in the Kaiserstuhl wine-growing region close to the French border, made public its plans to build a nuclear power station. The decision turned out to be fateful because it generated a potent, enduring resistance movement that gained traction over substantial swaths of society. Students from nearby Freiburg worked with wineries in Kaiserstuhl and scientists like Florentin Krause, the inventor of the Energiewende. In 1983, the Baden-Württemberg governor deemed the Wyhl project "not urgent" in response to the persistent protests, permanently abandoning plans for the facility (Renn and Marshall, 2020). The movement's success gave people in Germany and other parts of Europe optimism that they could stop the development of nuclear power plants. In the 1980s, various regional Energiewende organizations were founded across Germany as people sought new ways to take local action. This anti-nuclear movement played a role in the Greens' emergence as a political force. Around 1980, the Green Party began consistently winning more than five per cent of the vote, which is the required percentage to enter Parliament.

3. HOW REALISTIC WAS THE PLAN

It demonstrates the viability of Energiewende since it focuses primarily on using renewable energy, particularly with photovoltaics and hydroelectricity, energy efficiency, and energy management. A natural occurrence like wind can be used without incurring fees. This makes the proposal realistic because the wind is widely accessible. Hydroelectricity relies on water availability to function (Strunz, Gawel and Lehmann, 2019). Water is a naturally occurring resource; most of the time, people don't pay for water, especially if it comes from rivers, dams, or even streams. The strategy will routinely utilize water to produce electricity, which is energy, making the energy transition strategy more realistic. Another plan element that makes it practical is a solid team to assist with managing energy supply and generation.

4. SHORT RUN/ LONG RUN IMPACT OF THE PLAN

4.1. Replacement of fossil energy

Replacement of fossil energy is a long-run impact the energiewende will have on energy generation in Germany. When wind or solar energy is available in the United States and almost every other region, it replaces energy generated by coal- or natural gas-fired generators. Renewable energy sources displace different types of power depending on the time of day and the mix of generations on the grid. Numerous studies have discovered that when wind and solar energy output substitutes fossil generation, renewables lower CO_2 emissions. In the western United States, for instance, generating 35% of the electricity with solar and wind energy would result in CO_2 emissions being reduced by 25–45%.

While fossil fuel plants, particularly coal-fired units, have continued to be retired at a record-breaking rate, solar and wind farms have dominated the construction of new power facilities in the United States in recent years. Compared to 8.3 GW from natural gas, fresh wind and solar power generation capacity increased by 62% in 2019 (9.1 GW and 5.3 GW, respectively), and 14 G.W. of coal-fired electricity was eliminated. As predicted by the U.S. Energy Information Administration (EIA), less than a quarter of the country's increased production capacity will come from new natural gas plants in 2020, with the majority of the country's additional electric output coming from wind and solar energy. Indeed, some of these installations may need to be delayed because of the COVID-19 pandemic. The EIA notes that 12.9GW of coal-fired and 4.6GW of gas-fired capacity were retired in the same year, even though natural gas growth in 2018 outperformed that of renewable energy, reversing the previous trend in which renewable energy was in the lead.

4.2. Job Creation

The implementation of the energy plan in Germany can also cause an increase in job creation. According to Abraham (2019), at the start of 2020, the clean energy industry in the United States employed about 3.4 million people, most of whom were used in the energy efficiency industry. The employment rate for renewable energy was three times that of the fossil fuel industry in 2019. This was held for the District of Columbia and 42 other states. The quality of these occupations is another factor. The Brookings Institute discovered that those employed in the renewable energy sector earn higher and more equitable salaries than other workers, with mean hourly wages averaging between 8 and 19% higher. Although COVID-19 has hurt business, employment in the clean energy sector is only expected to grow. The U.S. Bureau of Labor Statistics predicts that the two occupations with the fastest job growth rates in the U.S. through 2028 will be solar installers and wind technicians. According to the "Transforming Energy Scenario" from the International Renewable Energy Agency, there might be 42 million jobs worldwide related to renewable energy by 2050, while there would be over 21 million more jobs related to energy efficiency. Contrarily, it is projected that the fossil fuel sector will have job losses of over 6 million over the same period, even without the effects of the virus.

4.3. Reduction of adverse effects on the environment

All power plants, especially renewable ones, have some adverse consequences on the environment during development, siting, development, and operation. The energy plan might have the same impact. Over the past 20 years, the siting practices for wind projects in the United States have evolved and are now more effective at reducing impacts. Therefore, wind projects have less of an impact compared to other project kinds, and according to the U.S. Department of Energy, they rank relatively low on lists of efforts that may harm the environment and wildlife (Málek, Rečka and Janda, 2018). These initiatives frequently provide co-benefits as well. Rural wind farms allow landowners to continue using the locations for farming or grazing while earning between $4,000 and $8,000 annually per turbine. Additionally, the property taxes that wind farm owners pay are used to pay for neighbourhood amenities like schools and recreation centres. Environmental assessments are required for solar siting approaches to identify and minimise any negative consequences. Plans that include pollinator-friendly plants safeguard wildlife, improve soil health and water retention, or encourage native vegetation can all have a positive impact. Farmers' benefits may include lease payments and county or municipal tax receipts. Payments to landowners in the U.S. could range from $300 to $1,000 per acre. These facilities also don't require any infrastructure for fuel delivery, such as gas pipelines, propane cars, coal barges, or railroads, all of which harm the environment.

4.4. Provision of the cheapest power

The energy plan for Germany will result in cheap power costs. According to Pescia eta (2018), solar and wind power prices have significantly decreased in recent years because of the availability of renewable energy. According to BNEF, onshore wind and utility-scale solar cost $44 and $50/MWh (on a Levelized basis) globally, down from $100 and $300/MWh just ten years ago. In the U.S., the Levelized cost of energy (LCOE) for utility-scale solar ($31-111/MWh) and onshore wind ($24-46/MWh) is currently lower than for practically all gas-fired power generation. Battery storage has experienced the fastest global price decline of all technologies, going from around $600/MWh in 2015 to about $150/MWh in the first half of 2020. Battery storage is essential to addressing the variability of wind and solar electricity. Due to this dramatic price reduction, utility-scale solar and onshore wind is the least expensive energy sources in two-thirds of the world. Even the most inexpensive gas-powered power plants now cost nearly $30/MWh to build and run. The price of constructing and running wind power projects in Brazil, the U.S., and India is also getting close to $30/MWh. By 2030, improvements will likely further reduce costs.

4.5. Reduction of emissions

Energiewende will also impact the emission of environmental pollutants like fossils. While pumped hydro storage facilities now provide the majority of energy storage, the use of battery energy storage is rapidly growing due to its increased cost competitiveness. The price of lithium-ion energy storage devices decreased by up to 85% between 2010 and 2018. Batteries are efficient energy transporters because of their 85–90% round-trip efficiency. If renewable energy sources fuel them, they don't generate any additional GHG emissions. Batteries can provide the grid with various functions, such as reducing the inconsistent output of wind and solar energy (Málek, Rečka and Janda, 2018). Storage can be used to obtain the backup or standby electricity needed, which the movie claims must come from standby gas- or coal-fired plants. Batteries will reduce the need for gas and coal, increase the amount of wind and solar power on the grid, and reduce emissions if they replace fossil fuel backup. Of course, four-hour discharge batteries cannot meet a power system's demands. Long-duration storage alternatives are one of the tools required for a dependable, economical, low-carbon power system, and further research is needed and is in progress in this area. Renewables generate more energy than is used in their products and produce fewer emissions than other power sources over their lifetime. While all electricity generation produces GHG emissions throughout its lifetime, renewable energy sources emit far less than fossil fuel-fired power plants. According to one study, renewable energy sources typically release 50g or less of CO_2 emissions per kWh throughout their lifetime, as opposed to coal and natural gas, emitting 1000g and 475g CO_2/kWh, respectively. The majority of the lifecycle emissions from fossil generators come from the combustion of fuel, but they also come from the extraction of raw materials, building, processing of power, running of plants, and decommissioning of facilities. Solar panels need a significant amount of energy to produce, but depending on the module type, studies have shown that after two years of operation, the energy used in production is offset (Málek, Rečka and Janda, 2018). Lead, silver, and cadmium are among the harmful compounds found in crystalline silicon and thin-film solar panels; as a result, more needs to be done to address correct disposal methods and module recycling, like what is done in Europe and by First Solar in the United States.

4.6. Electric vehicles reduce emissions substantially

More than 1 million electric vehicles (EVs) are currently in use in the United States, signalling a recent acceleration in the electrification of passenger vehicles. According to several estimations, there may be 20 million EVs worldwide by 2030, with over 4 million in California alone. Due to their efficiency being two to three times greater than traditional internal combustion engines and the absence of tailpipe emissions, EVs significantly reduce emissions and associated health benefits. However, they emit GHGs during fuel generation, vehicle production, and vehicle use. According to studies, the electricity consumed in the battery assembly and manufacturing facilities is responsible for about 50% of all emissions during the lifecycle of an EV battery(Egerer, Oei and Lorenz, 2018). The electricity required to charge an EV also affects its overall carbon footprint. Numerous cities and businesses across the nation are converting their fleets of vehicles to electric vehicles. Many have committed to supplying renewable energy to the country's electricity needs. But as we note in a recent WRI analysis, new solutions still need to make it easier for consumers to charge their EVs with renewable energy. Making EV batteries in facilities fueled by renewable energy sources might also potentially reduce the whole lifecycle emissions of an EV.

4.7. Lowering GHG emissions

The movement of the economy toward lower GHG emissions is essential to align financial risk and reward with investments in low-carbon energy. Chances are that the energiewende will help achieve that in Germany. Without significant private sector investment in clean energy, combating climate change will be more challenging, expensive, and time-consuming. Most ownership and investment in electric infrastructure in the United States comes from the private sector, in contrast to many other nations where energy suppliers, especially in the electric industry, are publicly owned corporations (Egerer, Oei and Lorenz, 2018). It makes economic and may be safer to direct private investment toward renewables and other low-carbon energy sources. There are flaws in renewable energy. No energy source is. But everyone on the planet needs electricity; therefore, switching to sustainable energy sources is preferable to sticking with dirty fossil fuels. Solving the urgent and significant global challenge of climate change, renewable energy is crucial, though not only a component of the solution.

5. SUCCESS/FAILURE OF ENERGIEWENDE

In 2000, when the government passed a law mandating renewable energy, Germany's energy transition got underway in earnest. But the significant change came in 2010 when Angela Merkel's grand coalition government energetically promoted renewable energy sources in both the Parliament and the broader public. In the wake of one of the worst nuclear disasters in global history, which happened in Fukushima, Japan, in March 2011, Germany began one of the most sweeping energy revolutions of any contemporary country, known as the Energiewende. (German for "energy transition"), while many countries around the world lagged in how to decarbonize society further and transition to a lower carbon energy system, created ground-breaking methodologies and spectacular achievements. The aggressive renewable energy goals of the Obama administration and the 2030 and 2020 climate goals of the European Union were in line. The three primary pillars of using renewable energy in the energy mix are the transition from coal and oil to natural gas and the phase-out of nuclear power. Initially, a strategy was put forth to increase the share of renewable energy in power generation by up to 38% in 2020, 50% in 2030, and 67% in 2040. In just 15 years, the share of renewable energy sources in overall electricity output increased from 5% in 2000 to 16% in 2007. In 2016, it almost reached 35%, and in 2017, its share rose. Feed-in tariffs were implemented to enhance the share of renewable energy in the energy mix. Due to recent technological breakthroughs, particularly in photovoltaics, solar panels, and wind turbines, operating costs for renewable energy appear to be declining. They may continue to do so in the years to come. This is especially evident in the increased specialization of wind turbines with optimized turbine architecture, which has reduced the overall cost of wind energy to practically equal generation from conventional sources.

Germany has also advanced toward the phase-out of nuclear power with a progressive phase-out from 160 TeraWatt Hours (TWh) in 2006 to roughly 80 TeraWatt Hours (TWh) in 2016. In 2011, the German Chancellor ordered the shutdown of seven of the oldest nuclear power reactors, with a complete phase-out by 2022. As Germany succeeded in producing the same amounts of electricity from renewable sources, worries that it wouldn't be able to create enough electricity were allayed over time. Ten years earlier, Germany had a nuclear energy capacity of 160 Twh; however, due to the capacity transfer, nuclear energy's contribution to overall energy generation plummeted to barely 11 gigawatts in 2017. As a result, the country still has minimal nuclear energy capacity. However, the coal sector has not advanced as much as the nuclear one. There are regional peaks in the nation's coal production, but since 2015, coal production has been declining. Coal is losing its viability in power generation as the volume of natural gas consumption rises due to more competitively priced LNG and pipeline gas, as well as the desire to achieve higher volumes of decarbonization at a national level following commitments made at the COP21 Paris Climate agreement. But when compared to advancements in other areas, coal consumption can be viewed as the least successful. The International Energy Agency's most recent coal statistic figures for 2017 show that continuous reliance on coal is declining. The project's execution faced numerous criticisms due to its enormous expenses, even though it has been a remarkable success story. Energy system transformation is undoubtedly an expensive endeavour, and the energiewende detractors said the initiative was ineffective given the poor results obtained in cutting overall coal use while carbon emission fell short of predictions. This criticism is valid, but recent developments in renewable technology, as well as the uptake of solar and onshore wind turbines, ought to put a stop to it. These developments have led to lower photovoltaic production prices. The restructuring of the energy system has also improved employment and investment, accelerated research and development in the renewable energy sector, and reduced the burden on the balance of payments by importing fewer hydrocarbons. Due to the phase-out of nuclear power and the decrease in coal usage to achieve a low-carbon energy system, Germany's energy policy decisions during the past 1.5 decades have experienced a significant transformation. The program's tenacity and ambition are evident in the outcomes obtained, which have set the stage for other nations to follow suit in aligning and collaborating to establish a sustainable and reliable energy system.

6. EFFECTS OF UKRAINE WAR ON THE GERMANY'S ENERGIEWENDE

The natural gas exports from Russia are crucial to Germany's energy transition, and if they are permanently stopped, Germany, the fourth-largest economy in the world, might experience a severe recession. Even though Germany invested about 202 billion euros in renewable energy projects from 2013 to 2020 and the Energiewende obtained legislative support in 2010, the idea has been put in jeopardy by Russia's invasion of Ukraine (Mikulska, 2022). The invasion has exposed significant flaws in German energy policy. Prior to the Ukraine War, Germany always imported 55% of its natural gas from Russia. Since the war began, the percentage has decreased. Even though what the Russian government was doing to Ukraine was inhumane and inappropriate, the European Union could not bring itself to forbid EU countries like Germany from importing gas from Russia. Without a doubt, Putin has been influencing Germany and the EU by leveraging Russian gas flows. As the leaders of Germany, Italy, and France visited Kyiv, Russia recently reduced flows via the Nord Stream 1 pipeline, which connects Germany and Russia, by 60%. Even worse occurred when the Nord Stream 1 was taken out of service for 10 days as a result of planned maintenance that started on July 11, 2020. Putin used maintenance concerns as a justification for a temporary reduction in Nord Stream gas flows, which caused German authorities to worry that Russia would simply refuse to reopen the pipeline after the maintenance (impact of Ukraine and Russian war on energiewende, 2022).

The fourth-largest economy in the world, Germany, is likely to enter a severe recession if Russia permanently cuts off its natural gas exports to that nation. Additionally, the war and its consequences on the supply of natural gas may make it difficult for Germany to meet its emission reduction goals in the energy sector (Mikulska, 2022). As a result, the government is evaluating all short-, medium-, and long-term possibilities to increase the independence and reliability of the energy supply. Short-term emissions reduction goals may temporarily be affected by the choices' implementation. As a result, energy prices will rise, which means that the business operations of energy companies will unquestionably suffer as a result. Even though Germany will always be an energy importer, there is now a greater need than ever for the rapid and substantial deployment of renewable energy sources in order to maximize energy independence.

6.1. Reaction of Germany's Government on the shortcomings caused by Russia's war againist Ukraine ion the energiewende

German policymakers have therefore considered reopening idled coal facilities to support their economy and ensure national security in the event that Russia reduces its energy supplies in response to the tensions. The dirtiest source of electricity is coal, which produces significantly more greenhouse gas emissions and air pollution than any other energy source. According to Germany's Economy and Climate Minister Habeck, as a result, the government must accelerate the development of renewable energy sources in order to diversify its supply and become less dependent on the importation of fossil fuels (Mikulska, 2022). According to Senator Olaf Scholz in Germany's Parliament, the German government is also expected to push for the building of the nation's first two liquefied natural gas import terminals as part of its attempts to guarantee its energy supply in light of Russia's conflict with Ukraine. As the next warm season is expected to increase gas demand and make the issue worse, senior German government officials have once again urged perseverance and sacrifice in the fight against the energy crisis. The government will implement new energy-saving measures, according to Economy and Climate Minister Robert Habeck, to ensure that gas storages are filled as scheduled. The Green Party politician declared that "the administration remains committed in its policy to end dependence on Russian energy supplies (Mikulska, 2022)." According to Habeck, Germany would need to cut its gas use by around 20%, which would necessitate a variety of steps to do so. Businesses are advised to follow suit by limiting the maximum temperature in public buildings during the upcoming heating season to 19 degrees Celsius.

7. INVESTMENT GERMANY SHOULD ADOPT TO MEET THE ENERGY GOALS

Germany's goal is to completely transition away from fossil fuels by the year 2035, as opposed to its earlier goal of doing so by 2040. Since the conflict between Ukraine and Russia, a number of suggestions have been made that look like reasonable ways to help Germany achieve its energy goals. According to Chancellor Olaf Scholz, Germany needs to take a drastic approach to diversify its energy sources and get off of Russian gas, which currently supplies half of the country. Building two liquid natural gas terminals will assist in increasing the nation's natural gas reserves in Brunsbüttel and Wilhelmshaven, respectively. Chances are good that the plan to develop the LNG will benefit Germany's largest utility RWE, which has been supporting efforts to create an LNG terminal in Brunsbüttel by Germany LNG Terminals, a joint venture between Gasune, oiltanking GmbH, and Vopak LNG Holding. The German government will also need to invest in phasing out coal-fired power plants by 2030 and suspending its nuclear power plans by the end of 2022 in order to meet its energy goals. In order to lessen Germany's reliance on Russian fossil fuel supply, the government will need to enhance its use of renewable energy.

Additionally, the expansion will involve buying more natural gas on international markets in cooperation with the European Union and increasing the volume of natural gas in its storage facilities by 2 million cubic meters via long-term projections. To guarantee that Germany's energy store has an adequate supply of natural resources by 2026, it is anticipated that Germany will have to invest over $220 billion on industrial transformation. According to German Finance Minister Christian Linner, this was anticipated. The $220 billion should cover climate change mitigation, advancements in hydrogen technology, and expansion of the electric vehicle charging infrastructure (Germany energy plan, 2022). The abolition of renewable energy taxes will help the state meet its energy goals because the money will also finance changes to the economy, society, and state. The economy and energy minister, Habeck, reportedly stated that there is a greater than ever need to invest in Germany's energy sovereignty, which is the path that the coalition's members are moving in. If the anticipated amount of money is put in place for industrial transformation, being more independent and climate neutral will be possible.

8. CONCLUSION

Energiewende is Germany's planned transition to a low-carbon, nuclear-free economy. However, the issue is much more complicated than just phasing out nuclear energy and boosting renewable energy sources in the power industry. Since it also began to enhance other areas and industries, such as transportation, food consumption, manufacturing, and corporate social responsibility, the German Energiewende is comprehensive. Similar energy revolutions have already started in other countries like Sweden and Norway. It is also acknowledged as the cornerstone of Germany's strategy to prevent or lessen the effects of climate change. Additionally, the principles guiding the German Energiewende are reflected in Germany's foreign policy as well as its involvement in global cooperation (foreign aid) and development. However, the natural gas purchased from Russia that Gear many was transporting was significantly impacted by the war that Russia started in Ukraine. It is well known that 55% of the natural gas used by Germany for its energy transition comes from Russia. Even though Germany has the fourth-largest economy in the world, it is likely to undergo a catastrophic recession if the flow of natural gas is suddenly stopped. In order to help Germany, reach its energy goals before the start of the Energiewende, the German government has been asked to increase its investments in certain areas. In order to achieve its energy targets, it was urged to invest in the phase-out of coal-fired power plants by 2030 and the suspension of its nuclear power ambitions by the end of 2022. The government will need to increase its usage of renewable energy in order to reduce Germany's reliance on Russian fossil fuel supplies. Additionally, it was recommended that the government keep constructing the two liquid natural gas terminals to help increase the country's natural gas reserves in Brunsbüttel and Wilhelmshaven, respectively, to aid in the accomplishment of the objectives. In order to meet the established energy targets, it was also advised that the German government invest 220 billion euros in industry transformation.

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MODEL FOR COSTS CALCULATION IN MANURE APPLICATION

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ABSTRACT

Climate changes have a significant impact on the most important aspects of agricultural production: ecosystem fertility, yield, production costs and revenues. The elasticity of the agroecosystem, as the ability to neutralize stressful conditions, significantly corelate the content of organic matter in the soil, which coul be increased by fertilization with manure. The lower price of manures than mineral fertilizers is an additional reason for their use. However, because of relatively low total content of nutrients (e.g. 1-5 %) compared to mineral fertilizers (e.g. 21-64 %), the large amounts of manure (on average around 35 t/ha, but can vary 10-50 t/ha) should be applied. The consequence are increased costs of transport and application, especially if production areas are far from the place of manure storage. The goal of this paper is to create a model for calculating the costs of manure application, which uses as initial

variables: the content of nutrients in the manure, the fertilization needs (depends on the soil fertility and the crop demands), the price of mineral fertilizers and manure, the distance and size of the production area, the need for hired transport of manure to production area, and the capacity, speed and working capacity of the manure spreader. It was found that up to a certain distance it is more profitable to transport manure with a spreader without additional hiring of transport, but this depends not only on the price of the hired transport (e.g. 1.5 EUR/t) but also on the capacity of the spreader. For example, with a spreader capacity of 14 t, it is more profitable to hire transport at a distance of more than 4.21 km to the plot, and with a spreader capacity of 10 t, it is more profitable to hire transport at a distance of more than 3 km. Also, the share of manure application costs in the total costs of organo-mineral fertilization significantly depends on the total fertilization needs and the need for hired transport (i.e. the distance of the plot). In the total costs of organo-mineral fertilization (from 347 EUR/ha on fertile soils to 1,026 EUR/ha on poor soils), the costs of manure fertilization are from 160 to 668 EUR/ha. The share of manure application in the costs of fertilization on plots 100 m away ranges from 5.04 to 8.38 %, and on plots 5 km away (without hired transport) it ranges from 14.7 to 23.7 %. Hiring transport for a plots distant more than 3 or 4,21 km decrease total cost of fertilization with manure, but also increases the share of application (hired transport and spreader costs) in total costs. The model determined that by increasing the plot distance, the share of manure application costs in the structure of organic fertilization costs increases from 5.04% (poor soils, distance 100 m) to 23.80% (fertile soils, distance 10 km).
Keywords: *costs, effectiveness, manure spreader capacity, manure transport*

1. INTRODUCTION

Growing population coupled with rising hunger has driven the industrialisation of agricultural practises that require increased use of arable land to achieve the highest yields through intensive use of mineral fertilisers and heavy soil tillage (Cen et al., 2020; Allam et al., 2022). According to the authors, the intensive use of mineral fertilisers has caused the loss of soil organic carbon, environmental pollution, overexploitation of natural resources, loss of biodiversity and negative climate change. Soil health and fertility are essential components of soil, which is a medium for plant growth and production (Shouire and Singh, 2021). Soil fertility gradually declines due to soil erosion, nutrient losses, accumulation of salts and other toxic elements, waterlogging and imbalanced nutrients (Dubey and Dubey, 2010; Cen et al., 2020; Allam et al., 2022). Climate is another important aspect of nature and direct and indirect impacts on soil fertility are observed due to climate changes (Shouire and Singh, 2021). Human activities directly or indirectly affect climate change and have further impacts on soil health. Climate change affects soil from its formation to crop production (Shouire and Singh, 2021). Agricultural regions that emphasise the use of chemicals have negative environmental, agricultural and health impacts, so organic fertilisation can be an alternative source to meet crop nutrient needs and also promote agroecosystem health, biodiversity and soil biological activities (Dubey and Dubey, 2020). The use of organic fertilisers (from organic materials such as plant residues, animal manure and food industry by-products) instead of mineral fertilisers could be an environmentally friendly practise for sustainable agriculture (Allam et al., 2022). Highly efficient organic fertilisers can increase crop yields without compromising soil quality. Thus, their use is a means to support both long-term food security and environmental conservation (Cen and al., 2020). According to Timsina (2018) and Allam et al. (2022), the main difficulty with organic fertilisers is that they are variable in terms of quantity and quality. Their macro- and micronutrients are lower compared to mineral fertilisers, so excessive amounts of organic materials have to be applied to meet nutrient requirements and achieve high crop yields. However, Diacono et Montemurro (2010) determined that the long-term use of organic materials in agricultural production has numerous economic values for farmers, since it minimizes the use of synthetic fertilizers.

From the Croatian Bureau of Statistics (2022), the price index for mineral fertilisers shows an increasing trend in the five-year period from 2017 to 2021. In 2017, the price index was 90.9 and in 2021 it was 166.4 (Croatian Bureau of Statistics, 2022). The same situation is observed all over the world and all farmers around the world are affected by the increasing prices of mineral fertilisers caused by the COVID and now the Ukraine crisis, which increase production costs. In the current situation, it would be more cost-efficient to use organic fertilisers (manure), as the prices of mineral fertilisers are constantly rising where possible. According to Lončarić et al. (2013), manure management is neglected as an agrotechnical measure in Croatia due to the complexity of applying manure. The authors concluded that the combination of organic and mineral fertilisation is 13-39% more expensive than pure mineral fertilisation due to high machinery costs. However, if the fertiliser is produced on the farm, the costs are up to 46.0% lower compared to mineral fertilisation. According to Lončarić et al. (2013), the use of organic fertilisers can solve many problems in agriculture, especially the problem of manure disposal, increasing soil fertility and crop yields, which has a positive impact on farm profitability and reduces the cost of agricultural inputs, including inputs for goods and services. Allam et al. (2022) concluded in their literature review that environmental and agronomic factors need to be included and assessed for each situation. They also found that organic fertiliser application in humid areas is more influenced by tillage and climate. The application of organic nutrients could have a positive effect on the yield of legumes, but the combined organic and mineral fertilisation with reduced tillage could lead to higher yields in cereals (Allam et al., 2022) . Cen et al. (2020) concluded in their two-year experiment in China that organic fertilisers can replace chemical fertilisers. They found that organic fertilisers made from soybean meal and cattle manure can improve crop yields and soil quality. According to available information on nitrogen mineralization values, DeLuca and DeLuca (1997) concluded that after 12 years of consistent application of composted manure, a stable nitrogen content in the soil can be achieved, after which it will no longer be necessary to add commercial nitrogen fertilizers. The aim of the study was to calculate the costs of mineral and organic fertilisers, including fertiliser management costs (transport costs and fertiliser costs), taking into account the level of soil fertility and the nutrient status of the soil. There are few such studies in Croatia, Lončarić et al. (2013) determine the costs of different fertiliser methods during a three-year production model for growing wheat, maize and sunflower. And in the world, Huijsmans et al. (2004) developed a model to calculate the cost and time of manure application to investigate favorable economics of manure handling and application and to promote the adoption of emission-reducing application techniques. Araji et al. (2001) provided an economic analysis of the efficiency of manure application on crops, while technical, ecological and economic aspects of different manure management systems and their evaluation with the help of identification of ecologically acceptable scenarios that promote a circular economy and restore essential nutrients in organic fertilizers were studied by Sefeedpari et al. (2019). Results of their study and the application of the created model indicated an additional need to consider various significant influences. Since there are a large number of variables that affect the profitability of organo-mineral fertilization, a model was created as an approximate representation of the agricultural production system from the aspect of fertilization, which serves for better understanding, changing or managing it, in order to achieve the most favorable outcome. Modeling can help in making decisions about the optimal use of manure and mineral fertilizers in the direction of mitigate negative effects of climate change and preserving soil fertility. The goal of this paper was to create a model for calculating the costs of manure application using as variables: the nutrients in manure, soil fertility, crop demands, fertilizer price, distance to the plot, the need for transport of manure, speed and working capacity of the manure spreader.

2. MATERIAL AND METHODS

2.1. Overview of available organic and mineral fertilizers on the Croatian market

Information on the prices of manure, organo-mineral and mineral fertilizers on the domestic market was obtained by searching and reviewing online advertisment and existing webshops, and by contacting producers of organic fertilizers, as well as producers and distributors of mineral fertilizers. The starting point for forming the prices of mineral fertilizers represents the real prices that agricultural producers paid when purchasing mineral fertilizers in the period July/August 2022. The economic analysis, which forms a large part of the model, was created based on the analysis of previously conducted fertilization experiments and survey research in communication with producers in Croatia. The prices included in the program are average prices for Osijek-Baranja County or the Republic of Croatia.

2.2. Soil analyzes and analysis of organic fertilizers

For the purpose of creating a model for the evaluation of the agronomic value of solid organic fertilizers, the data of soil analysis and organic fertilizers available in the existing databases were used. Existing databases were created as a result of soil fertility control and various fertilization experiments in agricultural production, mainly implemented in Eastern Croatia (Lončarić et al., 2022a, 2022b). Also, during 2021 and 2022, in the laboratory of the Faculty of Agrobiotechnical Sciences Osijek, numerous samples of solid organic fertilizers, primarily manure, from local agricultural producers, were received as a part of the operation 10.1.17. of Rural Development Program of the Republic of Croatia "Encouraging the use of manure on arable land", within the Measure 10 "Agriculture, environment and climate change". Therefore, revised relevant data on the content of nutrients in manure were used in this model.

2.3. Modeling of the evaluation of the agronomic value of solid organic fertilizers

The subject model is mathematical, created in tabular form that contains linear equations. It brings together all the data necessary for calculating the cost-effectiveness of organio-mineral fertilization and weather it is more favorable in relation to exclusively mineral fertilization. The model uses as initial variables: the content of nutrients in the manure, the fertilization needs (depends on the soil fertility and the crop demands), the price of mineral fertilizers and manure, the distance and size of the production area, the need for hired transport of manure to production area, the speed and working capacity of the manure spreader. It is used to test and determine the cost-effectiveness of organo-mineral fertilization in wheat production, on soils of varying fertility - considering the content of humus and the content of nitrogen, phosphorus and potassium in the soil. The quantities of nitrogen, phosphorus and potassium (N, P and K), needed in fertilization in wheat cultivation used in model are based on the pH value of the soil, the content of humus in the soil and the class of supply of the soil with phosphorus and potassium (Table 1). Therefore, starting point is represented by seven production arable plots of varying fertility, as follows: A-A, C-C, E-E, A-E, C-E, E-A, E-C.

In the range from A to E, the indicated marks represent:
(A) soil very poorly supplied with phosphorus and/or potassium,
(B) soil poorly supplied with phosphorus and/or potassium,
(C) soil moderately supplied with phosphorus and/or potassium,
(D) soil richly supplied with phosphorus and/or potassium,
(E) soil very rich supplied with phosphorus and/or potassium.

The content of humus in the soil ranges from 1.37 to 2.73%.

No.	Arable plot	pH_H_2O	pH_KCl	hum_%	$AL\text{-}P_2O_5$	$AL\text{-}K_2O$	$Class\_AL\text{-}P_2O_5$	$Class\_AL\text{-}K_2O$
1	A-A	5.11	4.07	1.31	4.23	7.01	(A) very poorly supplied soil	(A) very poorly supplied soil
2	C-C	6.63	5.73	2.17	17.53	22.31	(C) moderately supplied soil	(C) moderately supplied soil
3	E-E	6.68	4.98	3.11	35.11	43.12	(E) very rich supplied soil	(E) very rich supplied soil
6	A-E	6.07	5.17	2.57	4.97	47.39	(A) very poorly supplied soil	(E) very rich supplied soil
7	C-E	8.06	7.33	2.31	23.67	41.58	(C) moderately supplied soil	(E) very rich supplied soil
8	E-A	6.75	5.31	2.47	39.04	6.23	(E) very rich supplied soil	(A) very poorly supplied soil
9	E-C	6.81	5.93	2.73	37.21	21.14	(E) very rich supplied soil	(C) moderately supplied soil

Table 1: Soil properties of the plots of land used in the examples for creating a model of the agronomic value of solid organic fertilizers
(Source: Author's database)

The agronomic value of solid organic fertilizers, in fact manure, represents the direct fertilization value as a function of the direct replacement of mineral fertilizers which usually meet the needs of fertilization in the cultivation of field crops. More precisely, it is part of the nitrogen from the manure that will be available to the crop in the first season after fertilization and the total amount of phosphorus and potassium in the manure. The model can analyze different amounts of manure that can be applied with the aim of optimal fertilization and maintenance of soil fertility, but only up to a total amount of 170 kg/ha of N from organic fertilizer per year, as prescribed by the European Nitrate Directive (EU Commision, 1991). In the presentation of the model in this paper, due to the complexity of the other possibilities, only the economic effects of the amount of manure containing 170 kg/ha of N are shown, so organo-mineral fertilization was analyzed with the application of the maximum allowed amount of manure. The observed variables in model are distances of the production arable plot from the manure storage location (0,1 to 10 kilometers), manure spreader capacity (5, 10, 14 tones) and price of hired manure transport (with or without hired transportation by the price of 1.5 euro in radius of 5 kilometers). Nutrient content in manure can vary, which depends on the type of domestic animal, feeding and keeping conditions. For example, cattle manure contains an average of 5 kg/t N, while lumbripost can contain up to 23 kg/t N. The model uses as a default constant the average content of N, P and K in cattle manure, according to the results of analyzes in the Republic of Croatia (0.72% N, 0.63% P_2O_5 and 1.06% K_2O) and the price of manure obtained by researching the Croatian market of organic ferzilizers (15 EUR). Mineral component in organo-mineral fertilization consists of MAP and KCl, along with urea and CAN. All the calculations of the total costs of organo-mineral fertilization were ultimately reduced to the area of arable land of 1 hectare, for easier use and understanding of the presented model.

3. RESULTS WITH DISSCUSSION

It is known that organic fertilizers have a positive impact on the preservation of fertility and soil properties, and they can also reduce the need for mineral fertilizers and thus can impact fertilization costs. In this way, their economic value is manifested, in addition to the soil conditioning and fertilization value. The financial value of organo-mineral fertilization in created model is observed from the aspect of direct fertilization value (as a substitute for an adequate amount of mineral fertilizers) of solid manure in production of wheat with the expected yield of 8 t/ha.

For the calculations of organo-mineral fertilization cost, the following contents of main nutrients were used for cattle manure:
1) 0.5% N, 0.2% P_2O_5, 0.5% K_2O (less nitrogen than average for cattle manure),
2) 0.72% N, 0.63% P_2O_5 and 1.06% % K_2O (average data for cattle manure, Lončarić at al., 2022a)
3) 1.0% N, 0.4% P_2O_5 and 1.0% % K_2O (more nitrogen than average for cattle manure)

The cost-effectiveness of organo-mineral fertilization was observed in several different examples, in relation to the variability of:
1) the distance of the arable plot from the manure storage location (0.1 to 10 km),
2) spreader capacity (5, 10 and 14 t),
3) price of hired manure transport (with or without hired transport at a price of 1.5 EUR within a 5 km radius).

The prices of mineral fertilizers in the last year have increased exponentially, and fluctuate almost on a daily basis, due to the destabilization of the market by the energy crisis in 2022. Therefore, real prices that agricultural producers paid when purchasing mineral fertilizers in the period July/August 2022 in Croatia were used in the calculations for MAP, KCl, urea and CAN, as a constant values, i.e. the impact of changes in the prices of mineral fertilizers on the total costs of organic mineral fertilization was not observed. The results (presented in tables and/or graphs below) show the cost-effectiveness (as savings) of organo-mineral fertilization in comparison of prices of mineral fertilization and inflection points (the moment when the price of organo-mineral fertilization is equal to the price of mineral fertilization). It is known that the distance of the production plot from the location of manure storage increases total costs of fertilization, due to the increase in transportatiton costs, but the question is how far the application of organo-mineral fertilization remains profitable and what is the amount of transport and application of organic fertilizer in total organo-mineral fertilization cost.

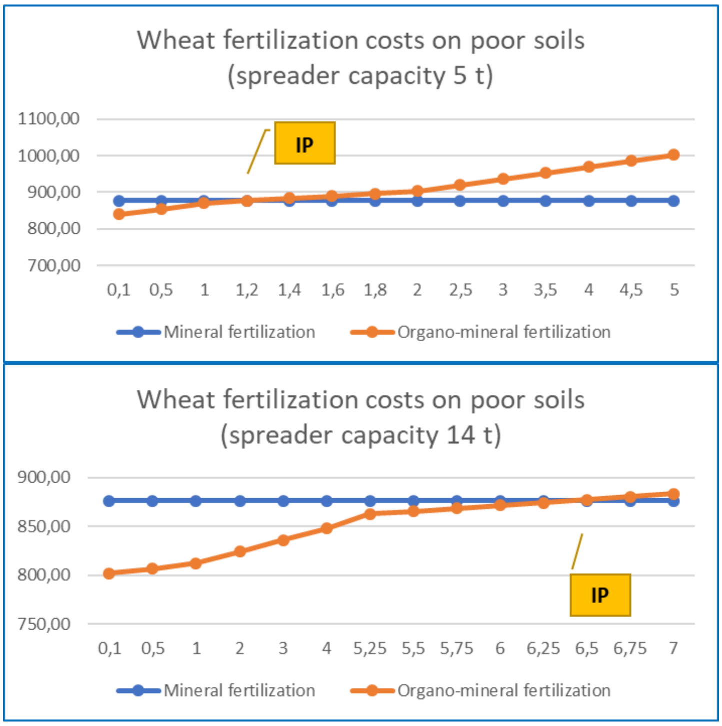

Figure 1: Wheat fertilization costs on poor soils depending on the distance of the production plots (cattle manure 0.5% N, 0.2% P_2O_5 and 0.5% K_2O)
(Source: Author's database)

According to Araji's et al. (2001) economic analysis of the efficiency of manure application on crops, the main problem with the use of manure is its composition, which has direct effect on application costs. The authors determined that the maximum distance that is profitable to transport chicken manure to equalize the costs of fertilization with mineral fertilization can be up to 20 kilometers, if it is applied to a certain type of soil, while fertilization with cow manure can be equalized with mineral fertilization on certain soils even at minimal distances. The model presented in this paper shows that the costs of organo-mineral fertilization are largely influenced by soil fertility and content of nitrogen in organic fertilizer. When a 5-ton spreader is used, the inflection point (Figure 1) was detected between 1 and 1.2 km (from the production arable plot to the location of the manure) but only on poor soils.

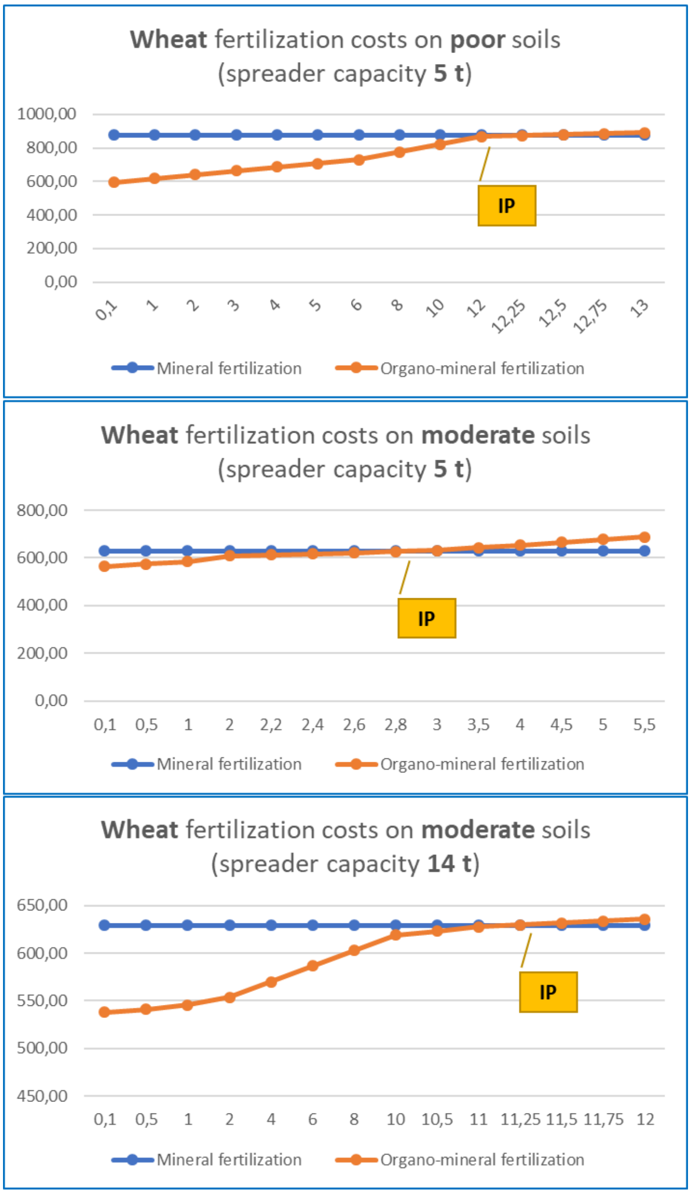

Figure 2: Wheat fertilization costs on poor and moderate soils depending on the distance of the production plots (cattle manure 0.72% N, 0.63% P_2O_5 and 1.06% K_2O)
(Source: Author's database)

For the spreader of the same capacity, organo-mineral fertilization turned out to be more expensive than mineral fertilization already at a distance of 0.1 km on rich and moderate rich soils.

When 14-ton spreader is used, the inflection point is between 6 and 7 km, but only if the manure is applied on poor soils. Thus, on soils rich in P and K, organo-mineral fertilization proves to be unprofitable even at a distance of 0.1 km, regardless of the capacity of the spreader, when the cattle manure with 0.5% N, 0.2% P_2O_5 and 0.5% K_2O is applied. Although organic fertilization has a positive effect on soil properties, it is more financially profitable to apply mineral fertilizers on such soils, taking into account only the value of direct replacement of mineral fertilizers with manure When cattle manure with 0.72% N, 0.63% P_2O_5 and 1.06% % K_2O (which is the average of last year's analyzes conducted in Republic of Croatia) is applied, the inflection point is detected even on poor and moderate fertile soils, for 5 ton spreader, and moderate fertile soil for 14 ton spreader (Figure 2). The share of the costs of transport and application of manure in the cost structure of organo-mineral fertilization grows proportionally to the distance from the production plot and the reduction of the capacity of the spreader, but if additional transport is hired at a price of e.g. 1.5 EUR/t for distances of 5 and 10 km of the production plot from the location of the manure storage, these costs can reduce. Since the share of the costs of manure application in the total costs of organo-mineral fertilization depends significantly on the total needs in fertilization, it is necessary to perform a cost-effectiveness calculation with the hired transport, especially on poor soils, which are located at a distance from 5 to 10 km. For the accurate calculation, in real production conditions, it is important to perform soil analysis and analysis of the manures that are planned to be applied.

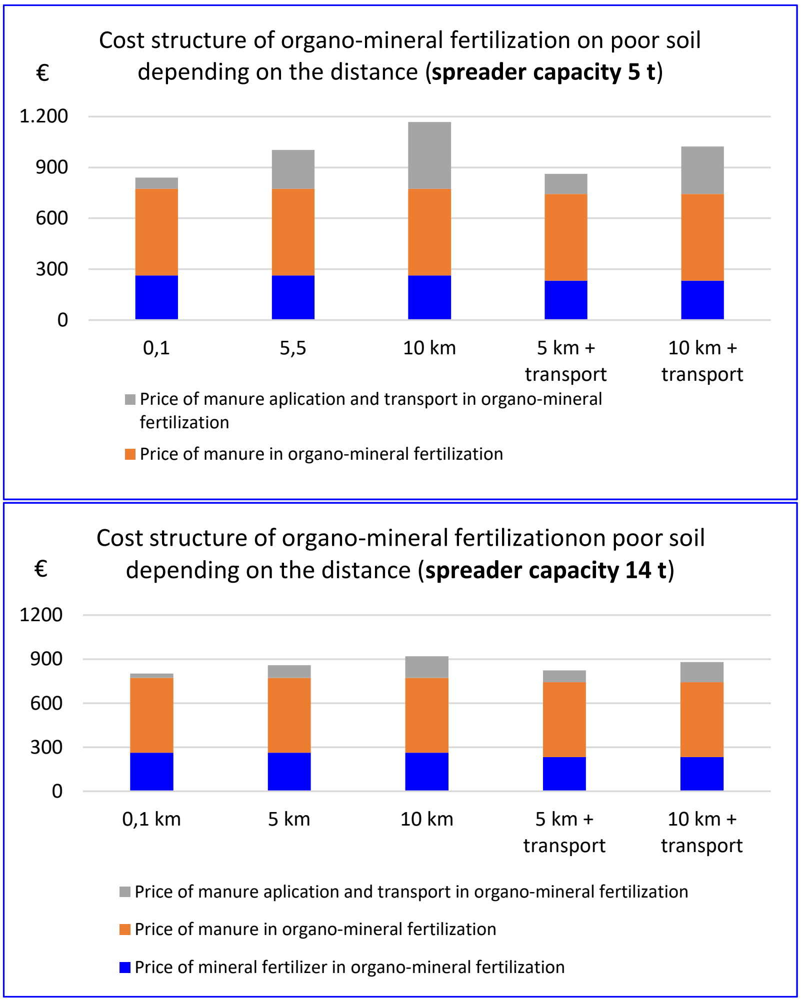

Figure 3: Cost structure of organo-mineral fertilization on poor soil depending on the distance and spreader capacitiy (manure 0,5% N, 0,2% P_2O_5 and 0,5% K_2O)
(Source: Author's database)

The results showed that with a spreader capacity of 14 t, it is more profitable to hire transport at a distance of more than 4.21 km to the plot than transport manure with spredaer, and with a spreader capacity of 10 t, it is more profitable to hire transport at a distance of more than 3 km. In the total costs of organo-mineral fertilization (from 347 EUR on fertile soils to 1,026 EUR on poor soils), the costs of organic fertilization are from 160 to 668 EUR. The share of manure application costs in the total costs of organic fertilization on plots 100 m away ranges from 5.04 to 8.38 %, and on plots 5 km away (without hired transport) it ranges from 14.56 to 23.69 %. Hiring transport for a plots distant more than 3 or 4,21 km decrease total cost of fertilization with manure, but also increases the share of application costs (hired transport costs and spreader costs) in total costs. The model determined that by increasing the plot distance, the share of manure application costs in the structure of organic fertilization costs increases from 5.04% (poor soils, distance 100 m) to 23.80% (fertile soils, distance 10 km). Since the total costs of organo-mineral fertilization are reduced by the increase of the spreader capacity and nitogen content in the manure, the savings from organo-mineral fertilization are presented below (Table 2), as the difference between the total cost of mineral fertilization and organo-mineral fertilization on soils of different fertility. In this calculation the cattle manure with 0.72% N, 0.63% P_2O_5 and 1.06% K_2O was used, and applied with the 10 ton spreader.

	Distance to the production arable plot and type of manure transport				
Soil Fertility	**0.1 km**	**5 km with spreader**	**5 km with hired transport**	**10 km with spreader**	**10 km (5 with spreader + 5 with hired transport)**
A-A (low P and K)	268 EUR	232 EUR	253 EUR	175 EUR	197 EUR
C-C (moderate P and K)	26 EUR	-10 EUR	11 EUR	-67 EUR	-45 EUR
E-E (high P and K)	-233 EUR	-268 EUR	-248 EUR	-326 EUR	-304 EUR
A-E (low P high K)	-20 EUR	-56 EUR	-35 EUR	-113 EUR	-91 EUR
C-E (moderate P high K)	-109 EUR	-145 EUR	-124 EUR	-202 EUR	-180 EUR
E-A (high P low K)	56 EUR	21 EUR	41 EUR	-37 EUR	-15 EUR
E-C (high P moderate K)	-87 EUR	-122 EUR	-102 EUR	-180 EUR	-158 EUR

Input values:
Fertilizer: **Cattle manure** | Price: **EUR 15,00/t** | Nutrient content in Cattle manure: **N 0.72%; P_2O_5 0.63%; K_2O 1.06%**
The distance of the plot: **0.1 km, 5 km, 10 km** | Hired transport: **EUR 1,5** | Spreader capacity: **10 t**

Table 2: Savings by organo-mineral fertilization (in EUR/ha) on soils of different fertility depending on the distance with or without hired transport
(Source: Author's database)

4. CONCLUSION

Organic fertilization with the addition of mineral fertilizers is a cost-effective method of fertilization on poor soils and in certain conditions on moderately fertile soils, especially at smaller distances of the production plot from the manure storage location. The profitability of organo-mineral fertilization is greatly influenced by the content of N in organic fertilizer (manure), which points to the importance of soil and organic fertilizer analyses. Application costs over longer distances can be reduced by hiring a transport service, which is certainly more profitable compared to transport by spreaders, especially those with smaller capacities, over longer distances (5-10 km). The conclusion of this research is that in addition to contributing to fertility and soil properties, organic fertilizers can contribute to reducing fertilization costs, especially in the current conditions of the energy crisis and climate change, which shows that they also have economic value.

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SUSTAINABLE TOURISM IN EUROPE: A PRISMA-COMPLIANT SYSTEMATIC REVIEW OF DEA APPLICATIONS

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ABSTRACT

This PRISMA-compliant systematic literature review identifies, presents and analyses the applications of Data Envelopment Analysis (DEA) in the evaluation of Sustainable Tourism in Europe. This paper aims to explore and analyze the applications of DEA in the evaluation of Sustainable Tourism in Europe, to present their findings and their used DEA models. Another goal is to offer a theoretical background to the concepts of sustainability, sustainable tourism and the DEA methodology. Namely, the sustainability and sustainable tourism concepts are contemporary and their incorporation into the tourism sector is inevitable. The used methodology is the systematic literature review based on the PRISMA guidelines with stringent selection criteria to include relevant Data Envelopment Analysis (DEA) studies on sustainable tourism in Europe. The Scopus scientific database has been explored with the keywords: „DATA ENVELOPMENT ANALYSIS (DEA)", "TOURISM" and "SUSTAINABILITY", which led to 10 relevant published papers regarding sustainable tourism practices in Europe. A tabular overview of these 10 papers, their used DEA models and the analyzed time frame is given, and more qualitative analysis of their findings is presented thereafter. The ultimate goal of this paper is to raise awareness among academic members, researchers and policymakers globally to employ the DEA methodology more often when it comes to the evaluation of sustainable tourism as well as to raise awareness of the importance of sustainable tourism development.

Keywords: *DEA, data envelopment analysis, tourism, sustainability, sustainable tourism, Europe*

1. INTRODUCTION

Tourism nowadays holds the status of "one of the biggest, most dynamic and complex socio-economic phenomena in the modern world" (Cvetkoska & Barišić, 2014) and is, without doubt, "a key sector for worldwide economies, that has undergone continuous expansion and diversification in the past 60 years, becoming one of the largest and fastest-growing economic sectors in the world" (Parte & Alberca, 2021). Thus, the tourism sector "has gained a lot of attention from academia and governments due to its strategic position in the economy and its efficiency and performance are closely researched and analysed" (Fotova Čiković, Lozić & Milković, 2022). The reason for this lies in the fact that global tourism represents "around 10% of the world's economic activity" (Radovanov et al., 2020), "7% of the global trade, and 1 in

10 jobs" (Barišić & Cvetkoska, 2020). However, in the past few decades, the concept of sustainability and especially sustainable tourism arises since the "degrading effects of tourism have become a big concern and need to be addressed quickly" (Zolfani et al., 2015). The sustainability concepts "are themselves forever evolving, adapting to site and regionally specific conditions and they can never be cast as universal" (Farrell & Twining-Ward, 2005). Moreover, sustainability has become "an integral part of policy in many sectors" (Bausch et al., 2021). According to Cracolici, Cuffaro & Nijkamp (2008), "sustainability in tourism is generally an aspiration or goal, rather than a measurable or achievable objective". Moreover, sustainability is a concept that is constantly incorporated in tourism (as well as other economic sectors) and thus, this paper will reveal the findings regarding sustainable tourism and sustainable tourism developments in Europe with the application of DEA. The goal of this PRISMA-guided systematic literature review is to identify, survey and present the findings, DEA models and aspects of the relevant published papers indexed in the Scopus scientific database, which employ the Data Envelopment Analysis (DEA) method, which refer to sustainable tourism in Europe. Other goals are to promote and present the DEA methodology and to encompass the DEA applications in this sector. The remainder of this paper is structured as follows. In the next section, theoretical background on the concept of sustainability and sustainable tourism has been laid out, as well as the Data Envelopment Analysis methodology. Section 3 presents the research approach and Section 4 the research results i.e. the applications of DEA in the exploration of sustainable tourism in Europe. Section 5 opens up a discussion and concluding remarks, as well as limitations and future guidelines.

2. THEORETICAL BACKGROUND

2.1. The concept of Sustainability and Sustainable Tourism

In the 2010s, sustainability has become "the pillar of sustainable development which is associated with three dimensions of harmony between people and nature: economic, social, and environmental" (Wu et al., 2021). The importance and priority of sustainability and sustainable development have been imposed and highlighted in 2015, with the UN's Resolution of 17 Sustainable Development Goals (SDG) which comprises 169 goals (UN, 2015). This has forced governments from all around the world "to put sustainability in their political agendas" (Bausch et al., 2021). Sustainability "implies the significant role of states in preparing a steady progress in living conditions for generations to come" (Zolfani et al., 2015). The concept of sustainability in tourism refers to "the economic, sociocultural, and environmental aspects of tourism development" (Wu et al., 2021). Even though tourism is one of the key contribution sectors in each economy, the damages it causes both to cities and natural environments, as a result of the "massification of tourist destinations" is one of the "fiercest criticisms levelled at tourism" (Palacios-Florencio et al., 2021). Therefore, it should come as no surprise that the concept of sustainable tourism has become a major issue in tourism development research "since the 1980-s" (Zolfani et al., 2015). It "is based on promoting and developing less massified tourist destinations" and it is considered that the development of sustainable tourism can enhance "the sustenance of the tourism industry since one of the premises on which sustainable tourism is based is the non-overcrowding of tourist destinations" (Palacios-Florencio et al., 2021). The official definition of sustainable tourism development is as follows (WTO, 2001):

- "Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems."

Radovanov et al. (2020) claim that the concept of sustainable tourism development "is imposed as a potential way of improvement not only for developing countries but also for those in a developed stage". This is the reason why sustainable tourism development is imperative not only for developing countries but the developed world as well.

2.2. Data Envelopment Analysis (DEA)

Practitioners and academic members are commonly investigating the performance and efficiency of different economic sectors and thus have three different methodologies at hand as follows: the ratio indicators, the parametric and the non-parametric methodologies (Micajkova & Poposka, 2013). The Data Envelopment Analysis methodology (DEA hereafter) belongs to the latter and is nowadays considered one of the leading non-parametric methodologies. It has been developed on the basis of Farrell's work (1957) and has been introduced in 1978 in the seminal paper of Charnes, Cooper and Rhodes (1978). It has gained huge popularity and extensive applicability in many different industries over the past four decades. It is considered a methodology that enjoys many advantages over parametric methodologies, due to its simplicity, easiness to implementation on small samples, simultaneous use of multiple inputs and outputs, „no required knowledge of the explicit functional form linking input variables and output variables nor a priori determination of the weights for these variables" (Fotova Čiković & Lozić, 2022). The DEA is a mathematical programming technique that is used to measure the relative efficiency of homogeneous decision-making units (DMUs), by constructing an empirical efficiency frontier based on the empirical data for the used inputs and outputs. DEA represents an assembly for comparative or relative efficiency because it estimates how efficiently each unit handles the process of transformation of resources (inputs) into results (outputs), which is compared with the rest of the peer units that are included in the same sample and analysis (Cvetkoska, 2010; Thanassoulis, 2001). The efficiency results range from 0 to 1 (0 to 100%), a result of 1 (or 100%) reveals the DMU is being relative efficient, and a result below 1 (0-1) is relative inefficient. Based on the returns to scale, there are two basic models of DEA, the CCR DEA model (with constant returns-to-scale, CRS) and the BCC DEA model (with variable returns-to-scale, VRS). Furthermore, DEA has two possible orientations as follows: the input-orientation and the output-orientation. The input-oriented DEA model assumes „minimization of inputs for the given level of output, whereas the output-oriented DEA model supposes maximization of outputs for the given inputs" (Poldrugovac et al., 2016). DEA has grown to be „a powerful quantitative analytical tool for measuring and evaluating technical efficiency by measuring the efficiency scores of the decision-making units" (Vincova, 2005) and is "one of the most applied and popular mathematical linear programming methods in the field of Operations Research (OR)" (Fotova Čiković, Lozić & Keček, 2022). It has been applied in the efficiency assessment of banks (Učkar & Petrović, 2021), bank mergers (Fotova Čiković, Lozić & Guzovski, 2022), hospitals (Kordić & Šimundić, 2017), countries (Škuflić et al., 2013), universities (Malešević Perović & Mihaljević Kosor, 2020), companies in the food and drink industry (Gardijan & Lukač, 2018; Pervan, 2020), the wood industry (Šporčić et al., 2006) and agriculture (Bahovec & Neralić, 2001). However, Emrouznejad & Yang (2018) reveal that most of the studies employing DEA focus on five research areas: „agriculture, banking, supply chain, transportation, and public policy".

3. RESEARCH APPROACH

The methodology applied to this paper is a systematic literature review, which represents "an essential tool for summarizing evidence accurately and reliably" (Liberati et al., 2009). Moreover, the PRISMA guidelines have been followed in an effort to summarize all the relevant published papers and their findings regarding sustainable tourism and its development in Europe, with the application of the most popular non-parametric DEA methodology.

The PRISMA guidelines “help systematic reviewers transparently report why the review was done, what the authors did, and what they found” and are very convenient for “syntheses of the state of knowledge in a field, from which future research priorities can be identified” (Page et al., 2021). Moreover, Fleming et al. (2014) claim PRISMA guidelines “have been developed to improve the reporting of systematic reviews (SRs)”. The PRISMA guidelines have been developed and introduced in 2009 and “consist of a four-phase flow diagram and a 27-item checklist, where the flow diagram describes the identification, screening, eligibility and inclusion criteria of the reports that fall under the scope of a review and the checklist includes a 27-item recommendation list on topics such as title, abstract, introduction, methods, results, discussion and financing” (Selçuk, 2019). The research design is presented in Figure 1 and a more detailed step-by-step process is laid out in the following paragraphs. In the first phase of the review (i.e. the identification phase), research has been initiated with the exploration of one of the most popular scientific databases, the Scopus database with the keywords: “DATA ENVELOPMENT ANALYSIS (DEA)”, “TOURISM” and “SUSTAINABILITY”. This resulted in 34 hits. As a second step, the goal was to identify the papers published in English, which resulted in 28 papers. Thereafter, 24 of these papers were fully downloadable. In the second and third phases of the review (i.e. the screening and eligibility phases), a detailed abstract screening has been applied in order to determine which of these papers regard European tourism. As shown in Figure 1, there were 10 papers left in the inclusion phase for quantitative and qualitative analysis. A tabular presentation of the included studies, their used models and their findings, is given in Section 4.

Figure following on the next page

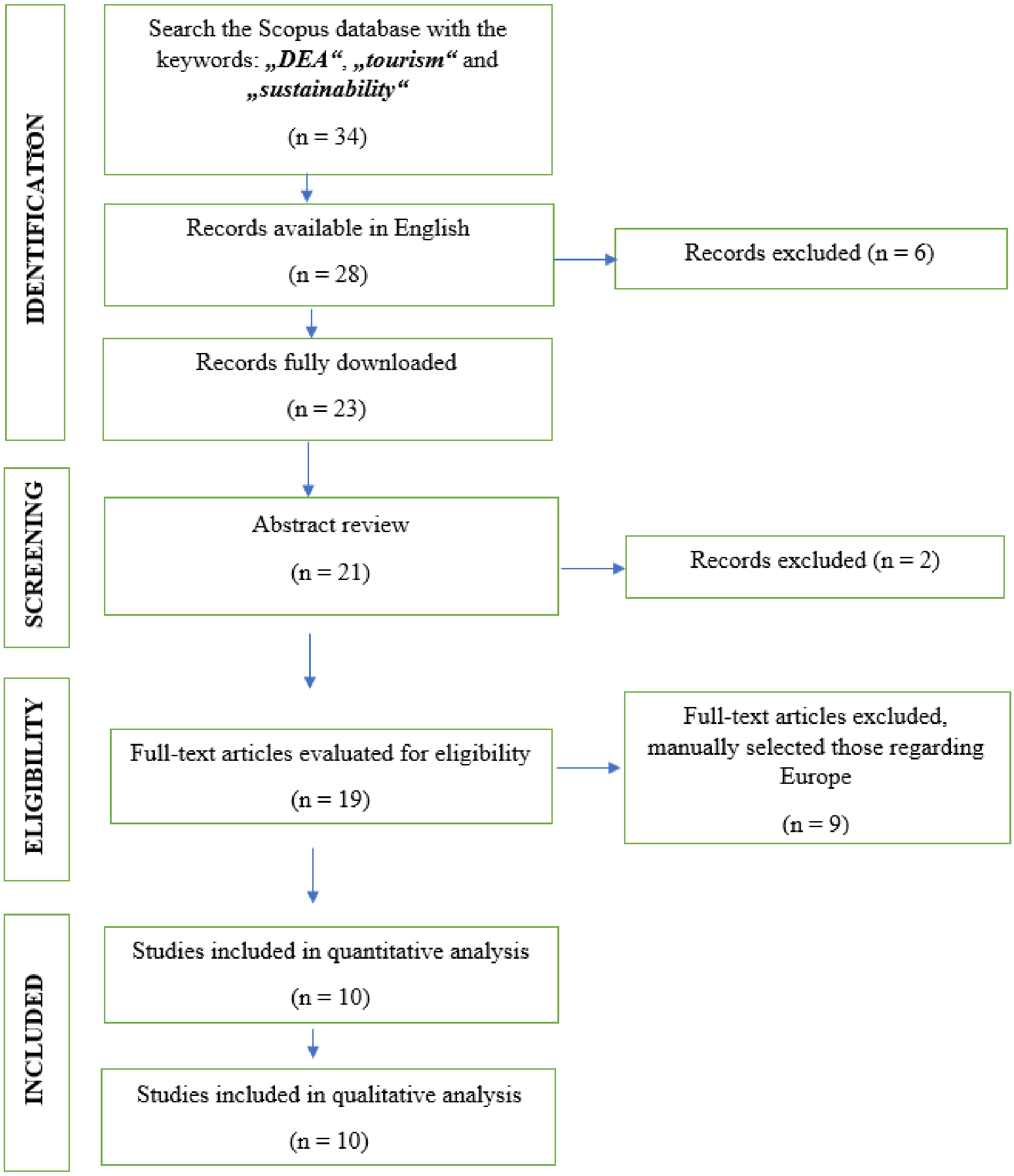

Figure 1: The research design and the selection process of the papers for the PRISMA-guided systematic literature review.
(Source: Authors' construction)

4. RESEARCH RESULTS - APPLICATIONS OF DEA IN EVALUATION OF SUSTAINABLE TOURISM IN EUROPE

This systematic literature review following the PRISMA guidelines explored and surveyed the Scopus scientific database in order to identify and present the relevant published papers regarding the application of the DEA in evaluation of sustainable tourism in Europe. Through the literature review, it has become quite apparent that there are not enough papers regarding sustainable tourism in Europe with the application of the DEA (a total of 34 papers, which decreased to 10 papers, as shown in Figure 1). In this Section, a short tabular overview of the ten surveyed relevant papers has been presented in Table 1 (authors, the title of the paper, analyzed European country, applied DEA model and time frame). Thereafter, a detailed and a more qualitative analysis of their findings is given.

Authors	Title of the paper	Analysed country	Applied DEA model	Time Frame
Dobrovič, Čabinová, Gallo, Partlová, Váchal, Balogova & Orgonáš (2021)	Application of the DEA model in tourism SMEs: An empirical study from Slovakia in the context of business sustainability	Slovakia	Four DEA models (CCR-I, CCR-O, BCC-I, BCC-O) + correlation analysis	2013 - 2018
Parte & Alberca (2021)	Business performance and sustainability in cultural and rural tourism destinations	Spain	Multistage modelling (DEA, non-parametric frontier and non-parametric tests)	2012 - 2016
Radovanov, Dudic, Gregus, Horvat & Karovic (2020)	Using a two-stage DEA model to measure tourism potentials of EU countries and Western Balkan countries: An approach to sustainable development	27 EU countries and 5 Western Balkan countries	Two-Stage output-oriented BCC DEA model + Tobit regression model	2011 - 2017
Sáez-Fernández, Jiménez-Hernández & Ostos-Rey (2020)	Seasonality and efficiency of the hotel industry in the balearic islands: Implications for economic and environmental sustainability	Balearic Islands (Spain)	DEA + directional distance functions (DDFs)	2015 - 2017
Kuncová, Tucková, Vojáčková, Chalupa & Rux (2018)	Sustainable regional development trough tourism: Case of the Czech municipalities of Vysocina region	Czech Republic	Four output-oriented BCC DEA model	2017
Solana Ibáñez, Para González & de Nieves Nieto (2017)	Efficiency and exogenous factors: evidence from Spanish tourism regions	Spain	DEA model and bootstrap semiparametric procedures to correct inherent bias	2008 - 2011
Brida, Deidda & Pulina (2014)	Tourism and transport systems in mountain environments: Analysis of the economic efficiency of cableways in South Tyrol	South Tyrol, Italy	A panel DEA-BCC model	2002 - 2008
Benito-López, Moreno-Enguix & Solana-Ibañez (2011)	Determinants of efficiency in the provision of municipal street-cleaning and refuse collection services	Spain	Two-stage double bootstrap method (DEA model + truncated-regression)	2005
Cracolici, Cuffaro & Nijkamp (2008)	Sustainable tourist development in Italian holiday destinations	Italy	DEA + Activity Analysis + overall efficiency indicator	2001
Fuchs, Peters & Weiermair (2002)	Tourism sustainability through destination benchmarking indicator systems: The case of alpine tourism	Europe (European mountain areas)	A proposed DEA-Indicator-System for benchmarking destination efficiency	1994

Table 1: Applications of DEA in Sustainable Tourism in Europe.
(Source: Authors' construction)

Dobrovič, Čabinová, Gallo, Partlová, Váchal, Balogova & Orgonáš (2021) focus on the evaluation of "the overall development and current level of efficiency of 21 Slovak spas in 2013–2018", through the application of four DEA models (namely, CCR-I, CCR-O, BCC-I, BCC-O) and correlation analysis. They selected three inputs (total number of beds, employees, medical staff) and two outputs (use of bed capacity, number of treated clients). They claimed "the most relevant and practically applicable results were reported when using the input-oriented DEA model with a variable range of returns (BCC-I). The obtained average efficiency result for all spa enterprises reached 0.7527 and the "average efficiency score confirmed a positive growing trend until 2015; however, the efficiency decreased by 1.84% in a year-to-year comparison in 2016–2018". Interestingly, this is among the first ever papers revolving around the importance of spa tourism with the application of DEA methodology.

Parte & Alberca (2021) have employed multistage modelling (DEA, non-parametric frontier and non-parametric tests) in the investigation of the business performance and efficiency in two sustainable tourism models: cultural tourism and rural tourism in Spain. The analysed sample comprised 2753 Spanish hospitality firms from 2012 to 2016. The selected inputs are Total assets, Number of employees, Labor costs and Cost of sales, whereas the output is Total income. The average efficiency result from the firms in cultural tourism was 58.7% in 2012 as opposed to 62.2% in rural tourism, i.e. "the rural tourism model performs better than cultural tourism model". Moreover, their obtained findings reveal that the efficiency of firms from cultural tourism "increased in 2015, before declining to 56.3% in 2016". Their findings "do not support the scale economies hypothesis", i.e. "the average efficiency is higher for very small firms compared to other firm sizes, although the average efficiency for large firms is higher than that for medium-size firms".

Radovanov, Dudic, Gregus, Horvat & Karovic (2020) have applied a two-stage output-oriented BCC DEA model to investigate sustainable tourism development in 27 EU countries and five Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, Macedonia and Serbia) in the period 2011 - 2017. In the first stage, they apply the output-oriented BCC DEA model and the panel Tobit regression model in the second stage. Their findings reveal that "the highest average technical efficiency was achieved in the EU 15 countries, while the countries that joined the EU later showed the lowest average efficiency of tourism development in the observed period". Moreover, the efficiency results for the Western Balkan countries show "a relatively high" efficiency, with values between 0.83 and 0.92, but with "a negative trend is present during the entire period, and especially in the last observed year". They found Finland, Luxemburg, Croatia, Serbia, Austria, Sweden, Malta and Germany Countries to be the most efficient in sustainable tourism, whereas Romania, Italy, Lithuania, Bulgaria, Hungary, Poland and Slovakia to be the least efficient countries in this context. Most importantly, they found the level of sustainable tourism development to be "a significant and positive influence on the relative tourism efficiency".

Sáez-Fernández, Jiménez-Hernández & Ostos-Rey (2020) have analysed the seasonality and efficiency of the hotel industry in the Balearic Islands, Spain (more specifically, on the islands of Mallorca, Menorca, Ibiza, and Formentera) and have thus referred to both economic and environmental sustainability. They apply the input-oriented BCC DEA approach (VRS) with three inputs: Fixed capital, Staffing costs and Other operating expenses and one output: Sales. The average efficiency results of the sample of the Balearic Islands hotel establishments is 0.7387. Their findings reveal very intriguing results which could be of great practical implications, especially to policymakers. Namely, they suggest that the seasonality of hotel establishments decreases their efficiency.

Thus, they suggest that “a reduction in the levels of tourism seasonality would improve the economic sustainability of the hotels and reduce the environmental pressure at peak times”. They also claim that the greater flexibility of inputs use, the higher the efficiency.

Kuncová, Tucková, Vojáčková, Chalupa & Rux (2018) have applied four output-oriented BCC DEA models to evaluate the efficiency of cultural and natural heritage for tourism. Their aim “is to compare the 15 municipalities with extended competencies (ORP) in the Vysocina Region (Czech Republic) from the tourism potential (based on cultural potential) using multi-criteria evaluation of alternatives methods and Data envelopment analysis (DEA) models”. In their DEA model, they use two input variables (number of monuments or utility based on the monuments and accommodation) and two output variables (number of overnight stays, domestic and foreign) for the year 2017. Their findings reveal that there is a great potential for further development of domestic tourism and “a great potential of natural components in the ORP Jihlava”.

Solana Ibáñez, Para González & de Nieves Nieto (2017) have employed the data envelopment analysis (DEA) methodology and bootstrap semiparametric procedures “to correct inherent bias” in order to explore the performance of Spanish tourism regions for the period from 2008-2011. Their sample consists of 17 Spanish autonomous communities, whereas the input variables for the DEA model were accommodation capacity (ACCOM), the total number of beds available (hotels, hotel-apartments, motels, hostels, lodgings, campsites, tourist apartments and rural tourism accommodation) and tourist arrivals (COMIN), the total number of people staying at least one night at an establishment and the output variables were the number of bed-nights (NBENI), the total number of nights a traveller stays at an establishment. Their obtained results reveal that Spanish regions are underperforming (about 56 per cent below their potential). The average efficiency result of the DEA BCC model is 0.64, however, this result decreases when the bias-corrected results are taken into consideration. This paper is based on and focuses on an appropriate choice of exogenous factors, and thus, its scientific contribution is immense.

Brida, Deidda & Pulina (2014) have employed a panel DEA-BCC model to investigate and estimate the economic efficiency of cableways in the Autonomous Province of Bolzano known as South Tyrol, situated in the North–East of Italy. Seven different administrative districts (i.e. Alta Valle Isarco, Bolzano, Burgraviato, Salto Sciliar, Val Pusteria, Val Venosta and Valle Isarco) have been analysed and taken into consideration for this research. The analysed period is from 2002 to 2008. The findings are related to sustainability and tourism issues and show that “this type of transport in the Italian Alps can be regarded as relatively economically inefficient and most of the cableways denote decreasing returns to scale”. Furthermore, they found “the Alta Valle Isarco, Bolzano and Salto Sciliar are relatively the most efficient districts, although in the last year the best performance is achieved by the Bolzano district, which also presents the best average performance”. Moreover, they suggest “adequate policy intervention as a balance between efficiency and sustainability”. This paper offers a great scientific contribution since it is the first paper regarding the efficiency of the cableways system with the application of DEA.

Benito-López, Moreno-Enguix & Solana-Ibañez (2011) have focused on exploring the efficiency in the provision of municipal street-cleaning and refuse collection services in a sample of 1072 Spanish municipalities with populations of between 1000 and 50,000 inhabitants in the year 2015. Their model is original since they have included several exogenous factors in the second stage of the model. Namely, they applied a two-stage double bootstrap method. In the first stage, they employed the DEA methodology to discover the robust efficiency results and thereafter, in the second stage, they employ a truncated regression as a means to investigate „the effect of a group of environmental factors on DEA estimates“. The obtained results reveal a „significant relation between efficiency and all the variables analysed (per capita income, urban population density, the comparative index of the importance of tourism and that of the whole economic activity)“. These results show the vital importance of tourism for Spanish municipalities and the great positive impact of tourism on better services management and waste management. Moreover, a significant and negative relationship between the two variables: per capita income and urban population density has been found.

Cracolici, Cuffaro & Nijkamp (2008) have revolutionized the use of DEA methodology in tourism sustainability development. The novel aspect is the application of the DEA methodology to macro units (regions, cities etc.). Namely, their main goal was to assess the tourist sustainability of 99 Italian provinces using the tools of Activity Analysis (i.e. two indicators: eco-efficiency and economic efficiency) in the year 2001. The obtained results "highlight that Central-Northern Italian provinces are economically and environmentally efficient". Furthermore, they "show a balance between economic and sustainable efficiency; that is, a lot of Italian provinces achieve good economic efficiency and good performance in terms of protection of the environment".

Fuchs, Peters & Weiermair (2002) focus on the efficiency of small and medium-sized tourism enterprises in four alpine Provinces of Austria (i.e. Tyrol, Vorarlberg, Salzburg and Carinthia). They use a sample of 3,423 hotels in the year 1994. In their model, they propose a DEA-Indicator-System for benchmarking destination efficiency. They claim that "developing sustainability in alpine destinations is very much tied up with the improvement of the human resources in order to increase the ability for a more efficient use of strategic destination resources". Moreover, they insist that a more consistent and long-term training for human resources is needed for "the 'new alpine tourism' to thrive and show sustainable competitiveness". This paper is among the first DEA papers that revolve around sustainable tourism. By using a European Alps case study, it "has demonstrated the applicability of the Data Envelopment Analysis as a method for combining several key destination productivity fac tors into one comprehensive productivity index".

5. DISCUSSION AND CONCLUDING REMARKS

This paper aims to identify and present all the relevant scientific work published in the Scopus database regarding sustainable tourism in Europe with the use of the DEA methodology. The research approach (presented in Figure 1) shows the whole PRISMA-compliant review process. Namely, the Scopus scientific database has been surveyed with the keywords "DATA ENVELOPMENT ANALYSIS (DEA)", "TOURISM" and "SUSTAINABILITY". This ultimately led to a total of 10 relevant published papers regarding sustainable tourism in Europe employing the DEA methodology. The findings from this PRISMA-compliant systematic review can be summarized as follows: the oldest study has been published in 2002 (Fuchs, Peters & Weiermair, 2002), whereas the newest in 2021 (Dobrovič et al., 2021). Thus, it can be concluded that the subject of sustainable tourism in Europe has become popular in the past two decades. Furthermore, most of the surveyed studies (four of them) focus on Spain (Benito-López, Moreno-Enguix & Solana-Ibañez, 2011; Solana Ibáñez, Para González & de Nieves Nieto, 2017; Sáez-Fernández, Jiménez-Hernández & Ostos-Rey, 2020 and Parte & Alberca, 2021), one on Slovakia (Dobrovič, Čabinová, Gallo, Partlová, Váchal, Balogova & Orgonáš, 2021) and Czech Republic (Kuncová, Tucková, Vojáčková, Chalupa & Rux, 2018), two focus on Italy (Cracolici, Cuffaro & Nijkamp, 2008 and Brida, Deidda & Pulina, 2014) and two

(Fuchs, Peters & Weiermair, 2002 and Radovanov, Dudic, Gregus, Horvat & Karovic, 2020) are cross-country studies and include multiple European countries. The author Solana Ibáñez is the only author of two out of ten papers (in Benito-López, Moreno-Enguix & Solana-Ibañez, 2011 and Solana Ibáñez, Para González & de Nieves Nieto, 2017). The longest studies are the studies of Radovanov, Dudic, Gregus, Horvat & Karovic (2020) and Brida, Deidda & Pulina (2014), which include 7 consecutive years, whereas four out of the ten papers include a single year (Fuchs, Peters & Weiermair, 2002; Cracolici, Cuffaro & Nijkamp, 2008; Benito-López, Moreno-Enguix & Solana-Ibañez, 2011 and Kuncová, Tucková, Vojáčková, Chalupa & Rux, 2018). The DEA methodology has been employed in combination with many various methodologies, such as the correlation analysis, the Tobit regression model, the directional distance functions (DDFs), the truncated-regression etc. Moreover, very different applications of DEA in various aspects of sustainable tourism have been presented: efficiency of tourism SMEs (Dobrovič et al., 2021), business performance and sustainability in cultural and rural tourism destinations (Parte & Alberca, 2021), measuring tourism potentials (Radovanov et al., 2020), seasonality and efficiency of the hotel industry (Sáez-Fernández et al., 2020), sustainable regional development trough tourism (Kuncová et al., 2018), analysis of the economic efficiency of cableways (Brida et al., 2014), efficiency of waste management (Benito-López et al., 2011) and sustainable tourist development in Italian holiday destinations (Cracolici et al., 2008). This research offers a solid scientific contribution to scholarly literature as well as to policymakers, governments and NGOs since it sheds light on the concept of sustainable tourism and thus works towards its development. However, this paper is not without limitations. First and foremost, the only database that has been surveyed is the Scopus database. Therefore, there is a possibility that other relevant papers have been published and have been indexed in other scientific databases, but have not been presented in this review. Secondly, this review focuses on the DEA methodology and its applications in sustainable tourism in Europe. In future work, the authors plan to investigate the state of the art without imposing any limitations on the used methodologies. Finally, a repetition of this study in a few years' time is recommended, in order to detect any future guidelines and perspectives in sustainable tourism development in Europe and globally.

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KNOWLEDGE AND SKILLS IN THE TIME OF DIGITALIZATION

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ABSTRACT

In the current fourth industrial revolution, more and more emphasis is placed on digitization in all spheres of the national economy. Digitization brings with it various changes that will affect people's personal and working lives. The situation in the labour market, where job seekers are looking for employment, is also changing significantly. However, with the advent of digital technologies, employers' requirements for individual jobs have changed radically. People who want to find a job need to supplement and expand their education to acquire the necessary knowledge and skills. And education is one form of investing in human capital. Companies need to retrain their current employees during the digital transformation so that they do not have to fire them. The article aims to refer to new knowledge and skills in the Slovak labour market, which employers require during recruitment interviews. The article consists of an analysis of the professional literature dealing with the issue under investigation and also analyzes and evaluates a questionnaire survey filled out by 905 Slovak economic entities in the years 2020 to 2021. The most important finding is that economic entities in Slovakia initially consider the analyzed knowledge and skills to be relevant, but on the other hand, their employees currently do not have the given knowledge and skills. Therefore, the challenge for economic entities is not digital technologies themselves but mainly people - employees who are not sufficiently qualified. For this reason, it is necessary to pay attention to the additional education of employees through various courses and training.

Keywords: *Digitalization, Human capital, Skills, Knowledge*

1. INTRODUCTION

Digitization, as part of the business and non-business environment, represents an opportunity for countries to improve the quality of people's lives but also to increase the competitiveness of enterprises. All countries in the European Union can compare the level of digitization and the readiness of human capital for changed market requirements through the Digital Economy and Society Index (DESI). This index points to the abilities, knowledge and skills that people should have to remain attractive to the labour market. We analyzed this index in the conditions of the Slovak Republic in more detail in our article "Level of digitalization and human capital in the Slovak republic" (Štaffenová, Kucharčíková, 2022). In this article, we focused on the currently required knowledge and skills in the labour market in Slovakia. The change in the components of human capital also occurred due to the COVID-19 disease, as digital technologies began to be used more.

2. THEORETICAL BACKGROUNDS

The fourth industrial revolution brought with it changes in the labour market. New digital technologies have caused some jobs to disappear and others to transform, meaning that employees will need to be retrained. In this case, the rule of thumb is that the more predictable and repetitive the work, the more likely employees will be replaced by technology. According to the survey, up to 33% of companies expect that if they decide to introduce new modern technologies, they will not need as many employees as they have now (Gonzalez Vazquez et al., 2019; OECD, 2018; Berkovič, Krajčo, 2021; Veber et al. ., 2018; Kurt, 2019). It is also confirmed by the situation of a Chinese company based in Dongguan City. This company replaced up to 90% of its workers with modern technologies. Thanks to that, the company's productivity increased by 250%, and the rate of errors and malfunctions decreased by 80%. In this case, modern technologies caused a negative phenomenon in the labour market because of the original 650 employees, the company continued to employ only 60. Their original intention was even worse when the number of employees within the all company was not supposed to exceed 20 (Javelosa, Hiuser, 2017). Digitization as an element of Industry 4.0 requires companies to have highly qualified personnel. Employees should be proficient in various specific software and tools and should be able to work with IS/ICT and other digital technologies. Only in that case will it represent added value for the company, but also for the country's economy itself (Polat, Erkollar, 2020). The nature of work will also change ordinary routine activities will be performed by modern technologies. For this reason, employees will have to complete their acquirement and retrain themselves to be able to control them and not lose their jobs (Agolla, 2018; Pereira et al., 2020; Stacho, Stachová, 2015). Considering digitalization and Industry 4.0, the most relevant group of people's abilities, skills, and knowledge are digital skills. Thanks to them, employees can use digital technologies in such a way that they also understand them. It facilitates work with the computer and other IS/ICT, which consists in searching for data, data processing, storage and presentation (Flores et al., 2020). When developing digital skills, a person should focus on five areas - information and data literacy, communication and collaboration, digital content creation, security, and problem-solving (Flores et al., 2020). Regardless of the field and conditions in which companies operate, they must use various motivational tools to support the success of their employees' education and acquisition of new skills (Ližbetinová et al.; Lorincová et al. 2019). Within the framework of digitization and ĽK, there is talk of mutual interaction of employees with modern digital technologies. It is stated that the elements of Industry 4.0 are necessary when a company wants to improve its processes, increase its competitiveness, and increase work productivity and employee motivation. Components such as automation, digitization, or robotization will cause employees to work much more efficiently than before (Bayram, Ínce, 2017; Ďurišová et al., 2019). The irreplaceability of human capital at the time of digitization was also confirmed when digital technologies were introduced into business processes. Because it is people who become the general value for the company, thanks to their knowledge, skills and competencies. Therefore, businesses should focus on LK and potential and not on financial and real capital. At the time of digitization, emphasis is placed on digital skills and abilities, ICT literacy, electronic skills, the ability to adapt to a new environment and, last but not least, digital literacy, which will enable people to work intuitively in a digital environment. That is why the skills are divided into two large groups. The first is hard skills, which include element competencies, technical skills, abstract thinking, the ability to create and work with written text, count and work with a computer. The second group consists of soft skills, i.e. flexible competencies, which include e. g. the ability to work in a team, decision-making, communication and the application of a situational approach to work. In addition, human capital during Industry 4.0 must also include characteristics such as knowledge of foreign languages, mobility, high level of education, ability to use computer programs, independence, or creativity (Flores et al., 2020;

Zaborovskia et al., 2020). According to Zaborovskaia et al. (2020), the impact of digitization on the HC itself is very difficult to determine because the mathematical and statistical methods for evaluation are not sufficiently developed. Other authors also talk about three groups of knowledge and skills - cognitive, emotional and digital. Cognitive abilities rebuild a person's intellectual abilities, thanks to which a person can further his education and also have a great impact on his work performance. They can be measured through intelligence quotient (IQ) (Schmidt, 2002; Hanushek, Woessmann, 2008; Hanushek, Woessmann, 2012). Abilities affecting human behaviour and actions in various situations are called emotional abilities. These abilities are measured using emotional quotient (EQ). Their importance is shown in managing stressful situations, employee commitment, motivation and work performance (Peter, 2010; Miao et al., 2017). In 2020, the WEF (World Economic Forum) also determined the crucial skills that workers should possess. The organization included in the list emotional intelligence, analytical thinking, critical thinking, lifelong learning, problem-solving, resistance to stress, creativity, originality, the leadership of people, use of technology, negotiation, flexibility, and persuasion (WEF, 2020). The organization AON (2021) states that the attention of companies will be focused on future skills, which reflect the needs of the constantly changing labour market and working environment. This type of skill will include various competencies necessary for the growth and development of people themselves, but also of businesses that digitalize, automate and use data-driven decisions. The required skills and types of employees intelligence (general, emotional, digital) differed during the industrial revolutions (Figure 1). The first industrial revolution was about the person physical assumptions and his physical skills. The second industrial revolution focused on people's knowledge and cognitive skills. Within intelligence, the emphasis is on general intelligence (IQ). The emotions and soft skills of workers characterize Industry 3.0. Therefore, in addition to IQ, emotional intelligence (EQ) is also important for employees. Industry 4.0 is based on the values and digital skills of workers. In terms of intelligence, it is general (IQ) and emotional (EQ), but also digital (DQ).

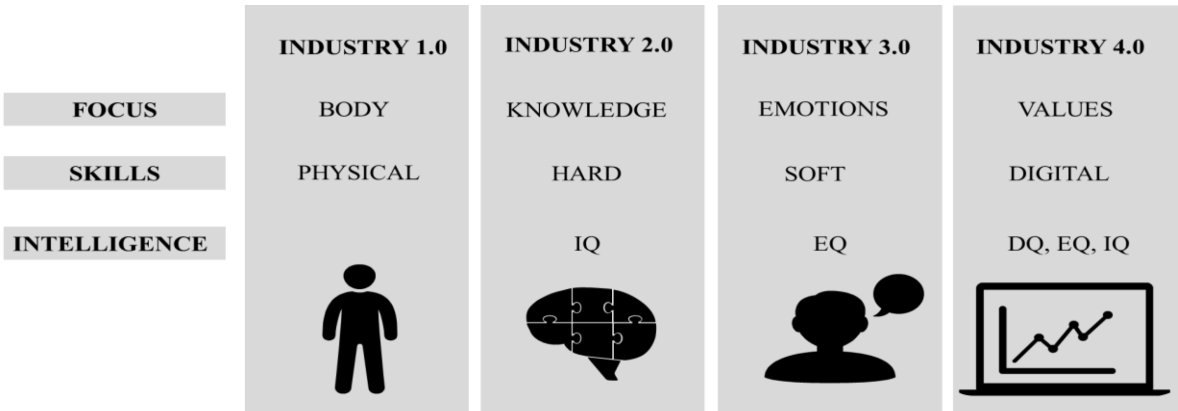

Figure 1: In-demand skills across industrial revolutions
(Source: Marnewick, 2021)

The most important finding is that Industry 4.0 does not replace LK with machines and equipment. It is about their mutual interaction (Pilichowska, 2021). Casalegno and Pellicelli (2013) claim that, even though many of the company's personal (personnel) costs are reflected in accounting, human capital is not only about managing and organizing workers. Accounting cannot capture in numbers an intangible asset or ethical values that are key to the company's economic growth. Therefore, economic entities need to track and monitor human capital. Measuring and maximizing investments in human capital as a business asset is also essential for businesses. If the company pays more attention to human capital and invests in it, e. g. in the form of education, more value is created for shareholders, suppliers or customers (IIRC, 2016). Due to the influence of Industry 4.0, digital human capital management was generated and represents the automated, online management of all personnel processes. Information about employees is quickly available for HR managers, but also the employees themselves. The digital form of personnel processes can be achieved by introducing highly automated and digitized information systems (HRIS) and supporting technologies such as electronic signatures or cloud services (Forbes, 2016). Thanks to digital HR, not only will costs for companies be reduced (reduction of administrative tasks, fewer manual processes), but also more services in the field of HR are provided (Forbes, 2016). It will be necessary to increase the digital literacy of the population through various tools and at the same time ensure that only applicants who have skills and knowledge in the field of digitization enter the labour market (Puraite et al., 2020). People can supplement their education through Education 4.0, which consists of artificial intelligence integration into the teaching and learning process. Its goal is to create a new form of education independent of time and space, which will be adapted to each person individually with the possibility of sharing skills. Companies will thus be able to train their employees much faster and more efficiently (Flores et al., 2020). Shultz (1961) also confirmed the great importance of education for the development of the individual, but also of the entire company, considering its growth and development. According to Vidová (2013), education and various courses or training can develop human capital. It leads to the deepening of existing knowledge, knowledge and skills, or the acquisition of new knowledge, knowledge and skills previously unknown to the individual. Thanks to education, the economic performance of companies also increases, which affects their competitiveness.The problem with obtaining qualified employees is also reflected in the situation in enterprises in Slovakia. In 2016, they were able to increase the number of their employees by up to 11.3%. Three years later, it was only by 3.5%. It was found that job applicants do not have the necessary knowledge. Therefore, a ranking of the five most sought-after soft and five hard skills that all job applicants should have was compiled. They included blockchain, cloud computing, analytical reasoning, artificial intelligence and UX design among the top 5 hard skills (Maťo, 2021). Within soft skills, i.e. personality traits and characteristics of a person, employers in Slovakia included creativity, persuasion, cooperation, adaptability and emotional intelligence among the sought-after skills (Maťo, 2021; Forbes, 2021). The disease COVID-19 has brought a change in the knowledge and skills of people in the labour market. Employers started looking for flexible candidates, that is, those able to work from the home office with flexible working hours. However, applicants must be willing to work late at night or early in the morning if their job position requires it, for example, due to a phone call with a business partner from Asia. The advent of digitization has caused businesses to demand IT knowledge and skills from applicants other than those applying for IT job positions. Universality is also coming to the fore when employers value more people who have a lot of experiences from different positions and are not narrowly specialized (Trend, 2021).

3. METHODOLOGY

The aim of the article is to highlight new knowledge and skills on the Slovak labor market, which employers require during job interviews. The article consists of an analysis of the professional literature devoted to the investigated issue and a synthesis of the acquired knowledge. In addition, methods such as induction, deduction. In the article, we also use the sociological survey method, in which we analyze and evaluate part of the questionnaire survey, which was filled out by 905 Slovak economic subjects in the years 2020 to 2021. The questionnaire was divided into six parts, in which identification data of economic subjects, use of modern tools, knowledge and the skills of managers and executives, the use of motivational factors, but also the use of the concept of human capital management and, finally, the manifestations of digitization towards customers and employees.

4. RESULTS AND DISCUSSION

As part of a sociological survey in the form of a questionnaire survey. It was conducted online between 2020 and 2021, and we focused on the values that economic entities consider relevant. We also focused on the knowledge and skills of managers and executives and the importance of individual motivational factors. The questionnaire was filled out by 905 economic entities, of which 603 entities (67%) had domestic (Slovak) ownership and 302 entities (33%) were owned by foreign owners. We divided subjects into four element groups by size – micro subjects, small subjects, medium subjects and large subjects. We assigned all four categories values by which subjects could be separated in terms of size. An entity is considered micro if it has from 1 to 9 employees. A small entity has from 10 to 49 employees. An entity that has between 50 and 249 employees is considered medium-sized, and finally, one that has more than 250 employees is classified as a large entity. Survey respondents covered almost exactly 25% of each size category. We received responses from 268 micro-entities (30%), 212 small entities (23%), 202 medium entities (22%), and 223 large entities (25%). It means that we have obtained answers that can be compared with other survey areas, and the results will not be skewed. The majority ownership of economic entities, as well as their size in terms of the number of employees had to be monitored for further research needs in terms of the implementation of digital technologies. The area of operation of the economic entity was also a significant factor. Within it, we allowed the respondents to choose from three options – 447 respondents worked in the service sector, 282 subjects were from the production sector, and the remaining 176 subjects came from other business areas. We constructed the questionnaire in a general way so that conclusions could be drawn that would be generally valid for various business sectors in Slovakia. When we wanted to compare and analyze knowledge and skills, it was also necessary to find out the values of subjects that they apply in their conditions. Values are also relevant from the point of view of the implementation of digitalization into processes, as also other changes that will be implemented in the entity. Among the element values (Figure 2) we have included – meaningfulness of work, commitment, passion, cooperation, recognition, open communication, support, autonomy, the emphasis placed on health, mutual trust and responsibility. For this part, we used a Likert scale from 1 to 5. Where 1 means that the subject does not apply the given value in his conditions, 3 means that the subject's representative did not know how to express himself, and finally, 5 represents the most important value for the subject which he applies and establishes you are on it.

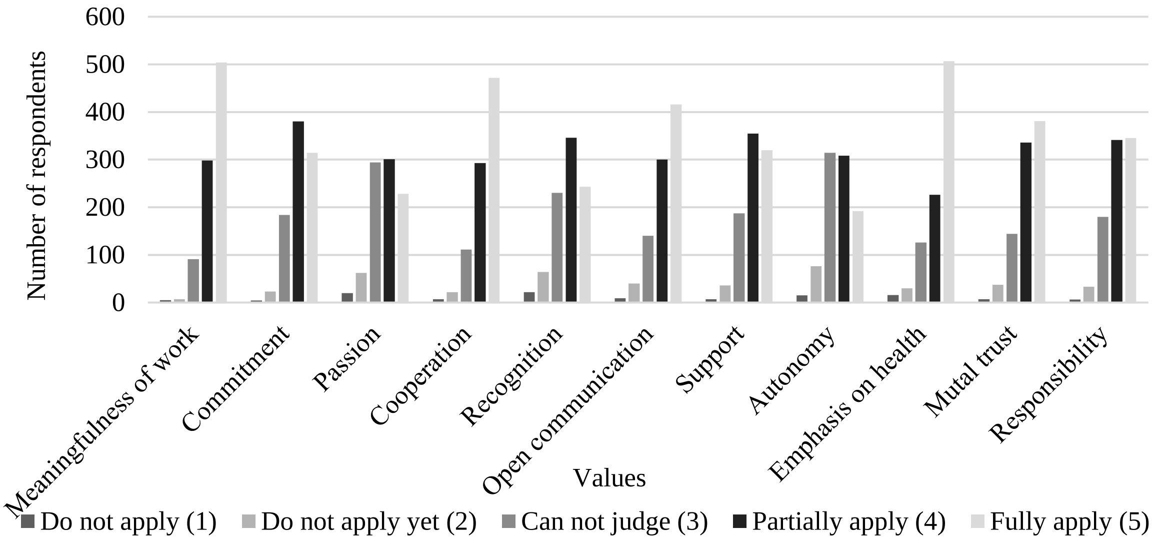

Figure 2: Subject values applied in reality
(Source: own processing)

We found that for 298 subjects the meaningfulness of work is partially relevant, and for up to 504 respondents it is the most important value on which they place their emphasis. Equally, we obtained high numbers for the value that emphasizes health. 226 entities consider it partially relevant to take care of the employee's health, but as many as 507 respondents claim that this value is a priority for them. In terms of the least relevant values for the respondents, the autonomy and passion of employees at work. Autonomy at work, i.e. the feeling of freedom at work, is not considered relevant or used by 91 respondents, and as many as 314 respondents in the questionnaire expressed that it is a value for which they cannot determine its importance. It is de facto about the possibility of flexible working hours, which can give employees a certain feeling of freedom and independence. The great importance of this value is also emphasized by a survey from Birmingham, where 20,000 employees expressed that independence and freedom at work are very important to them and can motivate them more to better work performance and helps them more easily manage the various changes that are taking place in the company (HNonline, 2019). Employers also show low interest in recognition, when they do not yet apply (64 respondents) or do not even plan to apply (22 respondents) for personal or public praise of an employee for a job well done. It is striking that up to 230 subjects could not say whether recognition was relevant to them or not. At the same time, research by the companies Oyster and LiveCareer pointed out that recognition is among the highest priorities of employees, regardless of their age or the work performed (Forbes US, 2022). Subjects identified a passion for work as an almost equally unimportant value when 82 subjects indicated that it is a value that they do not apply at all in their circumstances. As many as 294 subjects could not comment on this value. The fact that the respondents chose the option "I don't know" may also indicate that the representatives of the economic subjects who were approached do not know whether they apply such a value to their environment or not. It is also possible to understand that communication is failing in the entity, and management staff are not sufficiently attentive and do not have sufficient emotional intelligence. For the competencies of managers, we focused on 14 knowledge and skills that, in our opinion, are common competencies of managers (Figure 3). We have included self-study, i.e. the ability of a manager to learn, search and process information independently. It also involves critical thinking and creativity. As part of analytical thinking, a manager needs to be able to capture, structure and correctly understand information. Strategic thinking represents the ability to foresee and have a set vision and long-term goals that the manager wants to achieve. Among the sought-after skills are project management, quality management and crisis management skills (Jankelová et al., 2021). At the time of digitization, technological and IT skills are coming to the fore, which include, among other things, working with specific software. The manager should also be able to manage time and tasks. He should focus not only on customers so that he can understand them but also on employees, especially when it comes to proper motivation, management, or development. Last but not least, it is good if the manager is a team player who has good communication skills. So he has to be able properly argue and present the company internally but also in the external environment. Since the majority of entities currently operate not only in local markets, managers should also have intercultural sensitivity, which represents the ability to accept various intercultural differences. The fourteenth skill is self-motivation so that the manager does not burn out. If the manager is satisfied, it will also be reflected in his approach to others.

Figure following on the next page

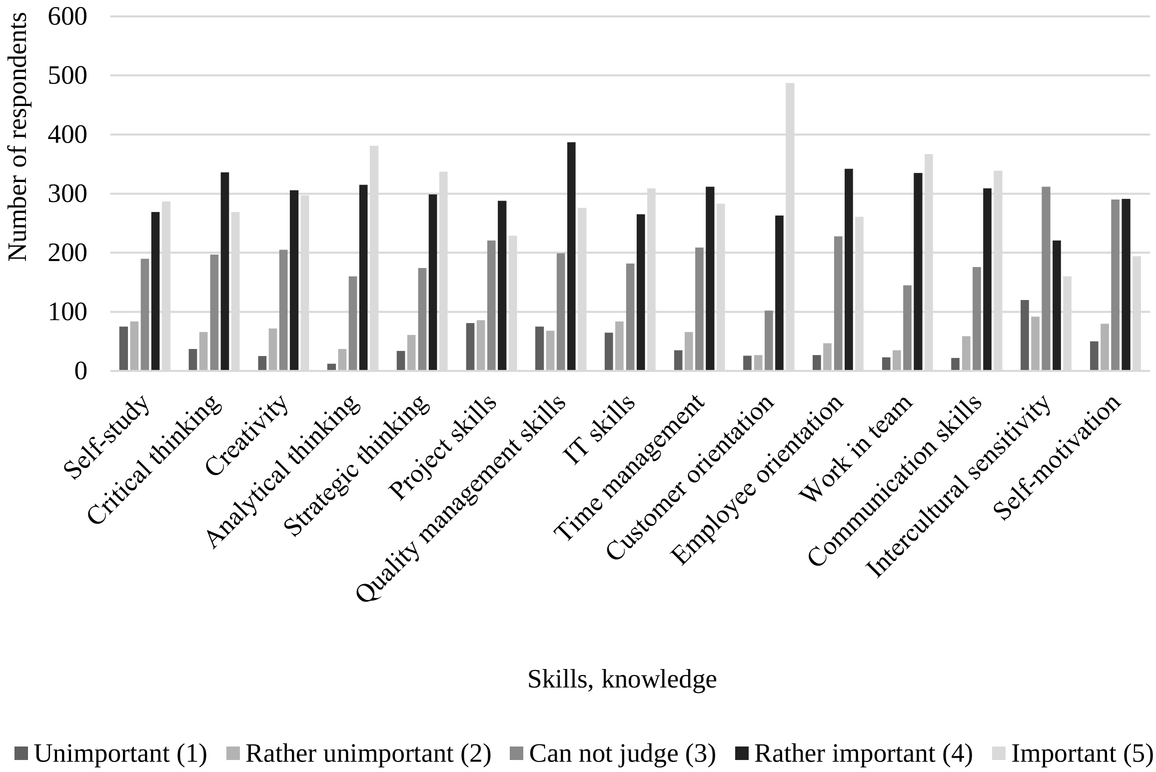

Figure 3: Competences of managers
(Source: own processing)

It is surprising that, within all 14 skills and knowledge, for the majority (up to 750) of the respondents, the most relevant skill of a manager is customer orientation. It may be because the companies filled out the questionnaire at the time when measures due to COVID-19 were introduced in Slovakia. To remain economically liquid, grow and develop, they had to focus on customers, whom they not only did not want to lose but mainly could not because they are their source of income. For 702 respondents, the second important skill that they apply in practice, is the cooperativeness of managers. According to our expectations, skills such as analytical thinking (696 respondents), communication skills (648 respondents) and strategic thinking (636 respondents) ranked high. According to the results of the questionnaire, these skills are very relevant in the interviewed subjects and are also applied in the search for managers. It is striking that self-motivation of managers (485 respondents) and intercultural sensitivity (381 respondents) are not applied by companies, and these skills are not relevant to them. The reason for this may be that companies do not focus on expanding abroad and do not even employ people of a nationality other than Slovak. In that case, it is not relevant for them that managers have intercultural sensitivity. However, it is questionable why the self-motivation of managers is not relevant for companies if they should be able to motivate their employees as well (Hitka et al., 2022). Thanks to it, it is possible to prevent burnout and other problems that mainly affect the mental and physical health of the manager. Regarding the skills and knowledge of executives, we included 9 skills in the questionnaire (Figure 4). The first is a professional qualification so that employees can perform the work for which they were hired. Furthermore, these are soft skills, which include interpersonal communication and relationships, willingness to cooperate and help each other in the workplace. We have also included technology and IT skills, including working with specific software, here, as well as with managers, because digitization will transform most jobs, so knowledge of working with technology will be increasingly in demand. The ability to study independently is also relevant for executive employees so that they can educate themselves if necessary. Other knowledge and skills are critical thinking and creativity. Analytical skills include using various tools and software, such as Excel, SPSS, Business Intelligence or Big Data. Employees should also have the ability to solve problems independently and be personally involved, e. g. be dedicated to work and do it from their convictions.

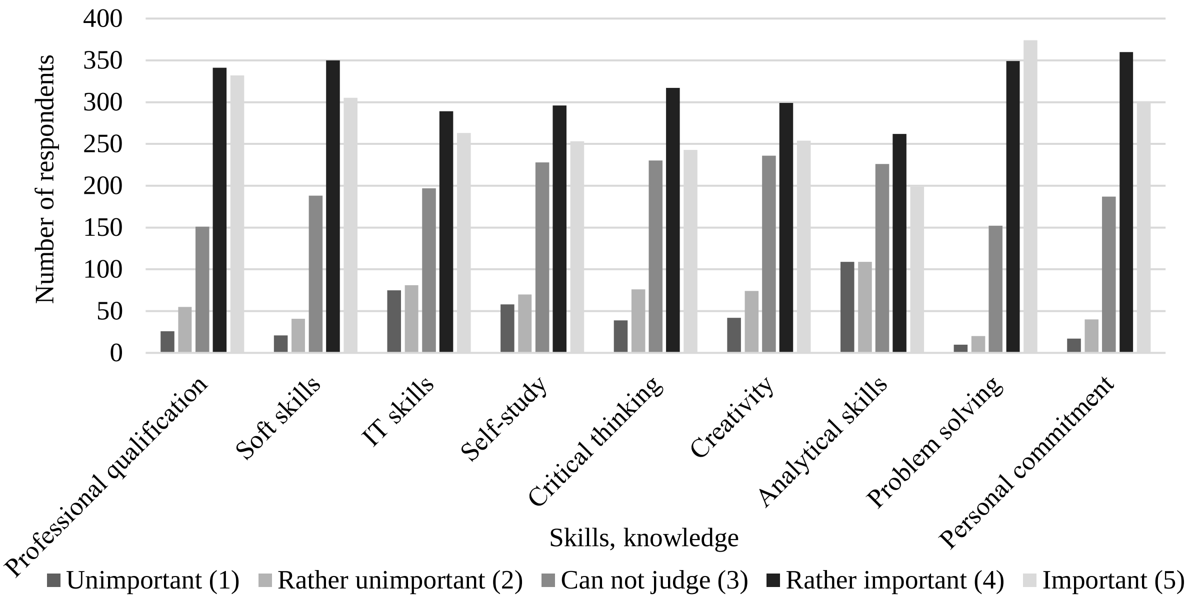

Figure 4: Competences of executives
(Source: own processing)

In the case of executive employees, it is surprising that companies solve the problem of a given ability (723 respondents) before professional qualifications (673 respondents). Economic entities in Slovakia also consider personal commitment (661 respondents) to be relevant, e. g. that employees are dedicated to their work and do it because it is fun and fulfilling. It can also be important from the point of view that such employees are loyal to the company and will not leave it. As a result, the company's turnover and costs for acquiring new employees are reduced. This approach is typical of the Japanese school of management, where they care about employees and look at them as people and not as a factor of production. The fourth important skill is soft skills (655 respondents), which are related to the personality of the given employee. Surprisingly, companies (461 respondents) are currently not interested in whether an employee uses analytical skills. Here, however, it is necessary to point out the problem that will arise when digital technologies are introduced. As jobs are transformed, employees will know how to work and work with technology. If they don't learn this, they risk being fired by their company and losing their chances in the job market.

5. CONCLUSION

The fourth industrial revolution will bring substantial changes, especially in the labor market. The reason for this substantial change will be new technologies to operate, which it is necessary to have certain digital knowledge and skills as element components of human capital. Technologies will help companies eliminate occupational accidents at the workplace, as in some cases, especially in dangerous work positions, human capital will be replaced by technology. However, modern technologies will also cause the disappearance of routine and stereotyped jobs, which until now were performed only by workers with lower education. If such workers want to continue working, they will have to retrain.

By retraining, they will acquire the necessary knowledge and skills, so they will be able to be reassigned to another job position. The most important finding in our survey is that the skills that are important for managers are irrelevant for executive employees and are not even required by the company. It is also surprising that companies prefer the ability to solve problems on their own over the professional qualifications of their executive employees. Equally striking is the lack of interest in the analytical skills of employees. With such an approach, the company may have a problem in the future because it will not have enough qualified personnel to control modern technologies.

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SITUATION AND POSSIBLE IMPROVEMENTS OF ENVIRONMENTAL PROTECTION IN EXTREMELY UNDER-DEVELOPED MUNICIPALITIES IN SERBIA

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ABSTRACT

The paper provides a short review of the poverty-environment nexus in extremely under-developed municipalities in Serbia, which has emerged as a major development challenge for the country. Based on the most important environmental parameters, the current situation in certain sectors (air quality, provision of sufficient quantities and water quality, waste management, natural resources, forests, and biodiversity) was discussed, indicating the dominant causes of environmental damage in municipalities that are officially classified as under-developed or devastated. The conclusion defines recommendations for improving environmental management in these municipalities.

Keywords: *environment, poverty-environment nexus, under-developed municipalities, Serbia*

1. INTRODUCTION

From an environmental perspective, poverty and unsustainable patterns of production and consumption are key drivers of the degradation of the environment, as stated long ago in the Report of the World Commission on Environment and Development: Our Common Future (Bruntland Commission Report). At the same time, environmental degradation and climate change can further increase poverty. Although there is no easy solution, poverty and the environment have to be addressed together. Numerous studies have suggested that environmental damage can have particular significance for the poor (Barbier, 2005; Barbier, 2010; Dasgupta et al, 2005). There is a common perception by the poor that environmental quality is an important determinant of their health, earning capacity, security, energy supplies, and housing quality (Brocklesby & Hinshelwood, 2001). Poor and vulnerable communities suffer from various forms of environmental injustice (UNDP, 2016). “No Poverty” remains the first of the United Nations' sustainable development goals (United Nations, 2015) and the human and natural worlds also need integration (Costanza et al., 2016).

2. THE STATE OF THE ENVIRONMENT IN UNDEVELOPED AND DEVASTATED MUNICIPALITIES IN SERBIA

Serbia’s local government organization consists of municipalities (150 in total), cities (23), and the City of Belgrade (i.e., 174 units of local-self-government). Municipalities differ much in terms of the territory (from 3 to 1,530 km^2), population (from 1,600 to over 340,000), population density (from 5.3 to 18.78 pers/km^2), and economic strength. The local self-government system is one-tier (there is no other tier of authority between the local and central governments), based on the monotypic model, which means that the largest and smallest local self-government units have the same competencies. However, the capacities to exercise those responsibilities through the performance of their activities are significantly different. The at-risk-of-poverty rate in the Republic of Serbia (25.5%) is considerably higher than the average at-risk-of-poverty rate in the EU-28 (17.3%) (Government of Serbia, 2018). Children (up to 18 years of age) are at a higher risk of poverty (30%) than other age groups, which is primarily attributable to the composition of the households in which they live. The at-risk-of-poverty rate is considerably higher in rural areas (34.1%) (Government of Serbia, 2018). Unequal regional distribution of poverty has conditioned the need for legal determination of under-developed and extremely under-developed (devastated) local self-government units. According to the Regulation on the Unique List of Development of Regions and Local Self-governments for 2014 ("Official Gazette of the Republic of Serbia" No. 104/2014), 44 municipalities are extremely under-developed (development level less than 60% of the national average), with 19 classified as devastated (development levels lower than 50% of the national average. The largest concentration of the extremely under-developed municipalities is in the South East and South West Serbia, where 15 municipalities belong to the group of 19 extremely under-developed. Further consideration will analyze the situation in certain sectors of the environment, with special reference to under-developed and devastated municipalities.

2.1. Air quality and greenhouse gas emissions

Air pollution is one of the most important environmental risks in Serbia today. Together with climate change, bad air quality poses a significant threat to the health of the population but is also one of the greatest threats to human well-being. Ambient air quality is deteriorated by a large number of substances, the most important of which are sulfur dioxide (SO_2), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOC), ammonia and suspended particles (PM_{10} and $PM_{2.5}$), as well as carbon monoxide, long-term organic pollutants (POPs), including certain polycyclic aromatic hydrocarbons (PAHs), dioxins and furans, polychlorinated biphenyls (PCBs) and hexachlorobenzene (HCB). The appearance of heavy metals (cadmium, lead, and mercury) in the ambient air is a particular danger. The electricity and heat production sector in Serbia generates 91.5% of SO_2 emissions and 53% of NO_x emissions. The highest percentage of SO_2 is generated by burning lignite of poor quality and with increased sulfur content from surface mines as an energy source in thermal power plants. Electricity and heat production are also most responsible for nitrogen oxide emissions (49.5%), along with traffic (19.2%). It should be emphasized that NO_x emissions from road traffic have been on the rise since 2016. In contrast, the highest percentage of suspended PM_{10} emissions (57%) comes from combustion plants with a capacity of less than 50 MW and individual boiler rooms, while emissions from industry account for 13%, from agriculture 10%, and transport 6% (Ministry of Environment of the Republic of Serbia, 2021). The situation is even more alarming with suspended $PM_{2.5}$ particles, which are mostly generated as a result of burning solid fuels in individual facilities and small boiler rooms with a capacity of up to 50 MW (77%). The latest WHO estimates of the average annual concentration of $PM_{2.5}$ in Serbia are 19.4 mg/m^3, with a slightly higher mean in urban areas (21.0 mg/m^3) than in rural ones. This is much higher than the average annual average concentration of $PM_{2.5}$ at the European level (14.0 mg/m^3) (Popović, 2020). Although emissions of suspended particles are highly seasonal, analyses show that in the last 15 years, the amount of suspended $PM_{2.5}$ particulate matter emissions, which primarily originate from burning biomass in households and which have been shown to have a very negative impact on health, has not decreased. Bearing in mind that the vast majority of households in extremely under-developed municipalities in Serbia, due to low incomes, use firewood for heat energy supply (over 90%) and, increasingly, burn energy sources of extremely poor quality (dried lignite, wet lignite and even waste of different origins), it can be assumed that this significantly affects the deteriorated ambient air quality.

Unfortunately, none of the extremely under-developed municipalities in Serbia established continuous monitoring of suspended particles yet. Out of all local self-governments from the category of extremely under-developed, only Surdulica and Knjaževac perform some kind of air quality monitoring, but this monitoring is not part of the automatic air quality monitoring system in Serbia implemented by the Environmental Protection Agency. Most under-developed municipalities do have neither the financial resources nor professional capacity to introduce air quality monitoring programs. In addition, under-developed municipalities generally do not have developed public policies that would stimulate improvements in households (replacement of solid fuel boilers with more energy-efficient and environmentally friendly devices using biomass or liquefied gas; use of renewable energy sources, etc.). In addition to the quality of solid fuels, increased amounts of pollutants from solid fuel combustion are also affected by the lack of regulations that would stimulate manufacturers of boilers, stoves, and other biomass devices instead of other solid fuels, which would improve device performance through improved design market. In addition to the above, the burning of residues from agriculture also contributes to the increase in emissions of suspended particles, which, although prohibited by law, is widespread in rural municipalities in Serbia. Air Protection Law and relevant bylaws define zones (three zones: Serbia, Vojvodina, and Kosovo and Metohija) and agglomerations (zones with more than 250,000 inhabitants; eight agglomerations: Belgrade, Novi Sad, Nis, Bor, Uzice, Kosjeric, Smederevo, and Pancevo) and air quality categories in them. Local governments in zones and agglomerations where air quality is classified in the third category are obliged to adopt an air protection plan. In addition, local governments must develop action plans when there is a risk of exceeding alarming limit values for one or more pollutants. These action plans define short-term measures to reduce the risk of extending the duration of such overruns. According to available data, none of the municipalities in the category of extremely under-developed has so far adopted a local air quality plan. One of the reasons is that these municipalities do not have enough capacity to prepare and implement these plans in a quality way.

2.2. Waste management

Every inhabitant of Serbia generates an average of 340 kg of waste per year. Local utility companies (predominantly) or private companies on behalf of the municipality collect and dispose of 2.46 million tons per year, with an average coverage of the municipal waste collection service of 86.4%. Separation of fractions and recycling of waste are in their infancy and there is no systematic monitoring of the amount of waste that is recycled. Separate collection of recyclable materials and biological waste is still not carried out properly. Hazardous household waste (e.g., fluorescent tubes, thermometers containing mercury, batteries, discarded medicines, waste paints, and varnishes) is not collected separately from mixed municipal waste. Almost the entire amount of waste is disposed of in landfills (over 97%). Out of 47 extremely under-developed municipalities, only 15 of them dispose of municipal waste in regional sanitary landfills, following the current National Waste Management Strategy. Other municipalities dispose of municipal waste in municipal landfills. These are mainly landfills for which remediation and closure are envisaged by the Strategy. Local landfills, with very few exceptions, do not meet the basic hygienic or technical-technological requirements. Most landfills are not located following standards, and some of the existing landfills have long since been filled. There are also a large number of illegal ("wild") landfills, i.e., dumps, created due to an insufficient number of sanitary landfills and under-developed awareness of citizens about the importance of environmental protection, and due to the lack of a complete waste management system in the past. About 20% of the generated municipal waste is dumped in illegal dumps, outside the control of municipal public utility companies.

Wild dumps are most common in rural settlements and are a consequence, first of all, of the lack of funds for the expansion of the waste collection system, but also of the poor organization of waste management at the local level. Legislation requires local governments to develop a local waste management plan. Most extremely under-developed municipalities have adopted Waste Management Plans (only 6 out of 47 municipalities have not adopted this document). However, the adoption of local waste management plans is mainly related to the period from 2010 to 2013. Only the municipalities of Razanj and Golubac have innovated their plans (Razanj in 2021 and Golubac in 2020). Having in mind that local waste management plans cover ten years of validity, it is evident that in most of the extremely under-developed municipalities these plans have expired, or are about to expire. In the meantime, new legal solutions and new waste management policies have been adopted at the national level, and new infrastructure for waste management has been built, so it is necessary to innovate local plans in a large number of municipalities.

2.3. Water supply, water quality, and wastewater management

The main sources of water pollution in Serbia are untreated industrial and municipal wastewater, drainage water from agriculture, leachate from landfills, as well as river navigation-related pollution, and the operation of thermal power plants. Municipal wastewater treatment is one of the most pronounced environmental problems in Serbia. This is a very financially demanding area, as it is estimated at 64% of the total capital investment needed to solve problems in the water sector in Serbia: a total of 1.5 billion euros needs to be invested in the water supply and municipal wastewater treatment sector, of which 800 million for rehabilitation and expansion of the network, 600 million for treatment plants and 100 million for water production. Settlements are supplied with water mainly from public water supply systems (over 150, excluding the Autonomous Province of Kosovo and Metohija) and other sources of water supply (local catchments, wells, etc.). The rate of households connected to public water supply systems in 2020 was 86.52%, while the percentage of the urban population connected to public water supply systems is significantly higher than the average in the Republic of Serbia. The rate of connection to the public water supply network in extremely under-developed municipalities reached an average of 60% in 2020, which is an increase compared to 2010 of 10%. However, the trend of increasing the percentage of connection to the public water supply network in extremely under-developed municipalities follows the average trend of increasing connection at the Serbian level, which means that in the last 10 years there have been no special successes in improving water supply in under-developed municipalities, i.e., in reducing the gap between developed and extremely under-developed municipalities. In more than 40% of public water supply systems, water quality is not satisfactory. This percentage reaches as high as 60% in rural areas. Losses in the water distribution network are estimated at over 35%. The quality of drinking water is unsatisfactory in a large part of Vojvodina (especially in Bačka and Banat), Pomoravlje, parts of Šumadija, and numerous smaller municipalities. In Vojvodina, there are also problems related to the excessive exploitation of groundwater. Insufficient protection of springs is present in the entire country. The percentage of households connected to the sewerage network has been constantly growing since 2000 and in 2020 it was 65%, while the same percentage for municipalities in the category of extremely under-developed is slightly less than 40%. This percentage is even lower in predominantly rural municipalities where septic tanks are still widely used, or municipal wastewater is discharged directly into the nearest recipient. Similar to public drinking water supply systems, the trend of increasing the percentage of connection to the sewerage network in extremely under-developed municipalities follows the average trend of increasing connection at the level of Serbia, so that the gap between developed and under-developed municipalities remains constant.

In addition, there is a significant difference in the degree of connection of the population to the sewage system concerning the connection to the water supply, especially in urban settlements with less than 50,000 inhabitants, which poses a risk of groundwater pollution. Untreated wastewater remains a major source of pollution. The biggest polluters are municipal and industrial wastewater that is discharged directly into watercourses, without prior treatment. In Serbia, less than 8% of municipal wastewater is treated before discharge, while the percentage of households from which wastewater undergoes any treatment in 2018 was only 14.1%. Today, the treatment of municipal wastewater is performed by plants that were built in different periods (32 active plants at the level of Serbia), of which a small number work according to project criteria, while others work with efficiency far below design. The existing industrial capacities within the settlements are most often connected to the public sewerage of the settlement and, as a rule, there are no facilities for pre-treatment of industrial wastewater before they are discharged into the city sewerage, i.e., recipients, or their work is inefficient. Although water management is the responsibility of the Republic of Serbia, many competencies have been transferred to the autonomous province, the capital, and local self-government. According to the Water Law, local self-government units are responsible for the management of II order watercourses, purification, and distribution of drinking water, as well as the collection and treatment of wastewater. Although there is already an appropriate legal basis for this, most local governments in under-developed municipalities face problems in implementing water management activities, especially wastewater management. The reasons are different, but the most important reason is the lack of financial resources and appropriate expertise at the local level.

2.4. Biodiversity and nature protection

The condition and rate of conservation of forests largely reflect the degree of preservation of the environment. Forest cover in Serbia is slightly lower than the average in Europe, but Vojvodina with a forest area of less than 7% is the territory with the lowest level of forest cover in Serbia and Europe, and in as many as 14 municipalities in Vojvodina, the forest cover level is below 1%. On the other hand, some of the extremely under-developed municipalities are characterized by significantly higher forest cover than the Serbian average (Crna Trava, Medvedja, and Kursumlija with over 65%). The spatial Plan of the Republic of Serbia sets the optimal forest cover rate at 41.4%. The declining trend in annual afforestation can be traced back to 1995 and today is well below 1,000 hectares, while in the 1980s about 10,000 hectares were afforested annually. In the period from 2015 to 2019, there was a decrease in the volume of afforestation by about 40% (from 992 hectares in 2015 to 614 hectares in 2019). Only 28.8% of forests in Serbia belong to mature stands, so the percentage of forests without growth is high. Due to inadequate implementation of forestry measures, 57% of all forests in Serbia are coppiced or devastated, while this percentage is estimated to be significantly higher in under-developed municipalities (for example, for Aleksinac over 90%). Degradation of forests in Serbia through deforestation and unplanned logging has led to the degradation of other natural resources, especially in hilly and mountainous areas, which has had negative consequences for the main components of the environment: air, land, flora and fauna, landscape and space as a whole. According to the data of the Forest Administration, about 51% of the annual growth is currently cut in state forests in Serbia, while it is estimated that this percentage for private forests reaches as much as 90% of the annual growth. Illegal logging is pronounced in rural areas where elderly households predominate, in border areas, especially along the administrative line with the Autonomous Province of Kosovo and Metohija, in forests returned to new owners through restitution, as well as in forests whose owners do not live in the forest area. As illegal logging is closely related to the economic conditions of the population, they represent a serious problem for extremely under-developed municipalities.

Based on the determined condition of forests in the field, local governments are obliged to adopt the Owners' Forest Management Program, a planning document for forest management that is adopted for forests of a large number of forest owners - individuals in one or more municipalities for ten years. As of the end of 2019, 24 out of 44 local self-government units from the category of extremely under-developed municipalities (mainly from the Southeast, South, and Central Forest Areas) have adopted the Program. Serbia is characterized by great genetic, species, ecosystem, and landscape diversity, the protection of which is achieved through the implementation of measures for the protection and improvement of species, their populations, natural habitats, and ecosystems. The main causes of biodiversity loss in Serbia are degradation and fragmentation of habitats, declining populations of wild species, endangered conservation of genetic diversity of indigenous populations of plant and animal species, the emergence of invasive and non-native species, and introduction of genetically modified organisms and natural disasters. Land-use change due to urbanization and tourism development, deforestation and draining of wetlands, as well as the conversion of meadows and pastures into fields, lead to significant losses of biodiversity. The purpose of the land in the period 2006 - 2018 changed the most due to the conversion into construction (an increase of 34,605 ha), while at the same time agricultural land was reduced by 86,492 ha. In addition, there is overexploitation of plant and animal species that are collected for various purposes. Extremely negative socio-economic changes in rural areas, production systems with large investments, and one-way selection in domestic livestock lead to a reduction in genetic variability. For aquatic species, extreme weather effects have a great impact on biodiversity loss, primarily floods that lead to changes in the flow regime in natural watercourses, while forest fires are the cause of changes in the composition of species in forest ecosystems.

3. ANALYSIS OF THE CONNECTION BETWEEN THE ENVIRONMENT AND POVERTY IN UNDER-DEVELOPED MUNICIPALITIES IN SERBIA

Three dominant problems related to the environment, income, and living conditions can be observed in under-developed municipalities in Serbia: degradation of physical factors of the immediate living environment, energy poverty, and low level of environmental awareness and education. Environmental degradation, which reflects on the unsatisfactory physical parameters and spatial conditions, affects the entire population, but the intensity of that impact is more pronounced in the quality and living conditions of poor and vulnerable groups. According to the 2013 Survey on Income and Living Conditions in Serbia, every second inhabitant of Serbia lived in an inadequate apartment (more than half in an overcrowded apartment, one fifth in an apartment that cannot be considered adequate because it is damp, insufficiently lit, or the lack of adequate sanitary conditions). One-third of households had problems with leaks and moisture, most of which are households living below the poverty line (2014 Income and Living Survey in Serbia), most often in rural and under-developed municipalities. Paradoxically, households in rural areas were exposed to the least impact, and households living above the poverty line in urban areas, i.e., households living below the poverty line in mixed settlements, were the most affected. Energy poverty[1] is one of the most visible indicators of the link between poverty and environmental disruption and has direct negative impacts on the environment - from the use of energy sources whose combustion increases pollution, illegal logging to obtain firewood, to land degradation and impacts on biodiversity as a consequence of dominant uses of fossil fuels. In addition, energy poverty has significant socio-economic consequences - a negative impact on economic and social development and increasing social inequality and segregation, as well as consequences for public health. Energy poverty affects the under-developed by further increasing the risk of poverty.

[1] The current Draft Law on Energy Efficiency and Rational Use of Energy defines energy poverty by three groups of criteria: low household income, high consumption of disposable income on energy, and insufficient energy efficiency.

The emergence and increase of energy poverty are predominantly influenced by several factors, the most important of which are:

- Technical - technological characteristics of buildings related to energy parameters (building materials from which the buildings are built, poor quality windows and doors, insulation materials);
- Low household incomes that are insufficient to procure the necessary energy sources;
- Poor quality and energy inefficient devices for heating and hot water in households, with high heat losses;
- Use of energy sources whose combustion generates and emits pollutants into the environment (mostly raw wood, and recently wet lignite of low thermal power, and even waste);
- Negative consequences for public health and natural resources, which arise in the process of energy production from fossil fuels;
- Physical or price unavailability of district heating, as a consequence of dysfunctional technical and technological systems of district heating and high energy prices.

Previous research on energy poverty in Serbia indicates a correlation between poverty, housing conditions (primarily the way of housing heating), and the health status of the population (Kovačević, 2004; Macura, 2018). Households in Serbia consume an average of 11.3% of available income per month for consumed energy, with more than 50% of overall electricity consumed in the housing sector. Although the available research data for the last decade cannot be considered relevant enough, it is estimated that between 60 and 80 percent of households in Serbia can be categorized as poor in terms of energy, spending more than a tenth of their income on energy costs, or implementing various cost reduction strategies, that makes the life of these households substandard, unconditional and poor (reducing the heated space of the apartment during the winter season, thus reducing the area of living space per household member used to less than 10 m^2). The risk of poverty increases in households that use inadequate heating systems, due to the use of poor quality solid fuel incinerators and emissions of pollutants that they emit. In addition, certain social categories are more vulnerable to energy poverty (social assistance beneficiaries, single-parent families, and people with disabilities). Energy poverty is still not sufficiently recognized as a problem at the local level, especially in under-developed municipalities where this problem is widespread.

4. CONCLUSIONS AND RECOMMENDATIONS

The environmental driven development of under-developed municipalities in Serbia must be planned and implemented in such a way as to reduce the levels of pollution and the impact of harmful factors on the environment and human health, preserve and improve existing natural values and put them in the function of social and economic development, establish an integrated management system of rational use of natural and man-made resources, and raise the level of public awareness and administrative and technical capacities of local administration and the public to establish an effective environmental management system that includes cooperation and participation in decision-making of all stakeholders and citizens. This can be achieved by:

- reducing harmful effects on health by reducing exposure to air pollution, following the Air Protection Program of the Republic of Serbia;
- establishing an integrated system for municipal waste management in extremely under-developed municipalities;
- establishing an integrated management system for special waste streams in extremely under-developed municipalities;
- closing and recultivating unsanitary landfills and dumps;

- capacity building and raising public awareness on municipal waste management in under-developed municipalities;
- providing sufficient quantities of water of appropriate quality for different categories of users, primarily for the supply of water to the population, while not endangering the environment;
- achieving and maintaining good status and good ecological potential of surface and groundwater water bodies;
- protecting existing forests and increasing forest areas;
- improving institutional and administrative capacities for biodiversity and geodiversity conservation and reporting on biodiversity and nature protection in extremely under-developed municipalities;
- strengthening the capacity of all participants in the processes of industrial pollution risk management at the local level.

In air pollution protection, it is very important to establish financial incentives to replace existing household low-power combustion appliances (solid fuel stoves) with new eco-designed appliances following the Eco-Design Directive 2009/125/EC and expand the air quality monitoring network (together with the Environmental Protection Agency) by installing measuring stations in under-developed municipalities that may be further exposed to air quality deterioration (especially municipalities where there are or can be expected increased concentrations of suspended particles: Malo Crniće, Žabari, Mionica, Ljig, Rekovac, Rača, Varvarin, Ražanj, Aleksinac, Surdulica, Vlasotince, etc). As the strategic framework for waste management in Serbia is changing, it is necessary to harmonize local waste management plans in extremely under-developed municipalities. At the technical and technological level, municipalities should build recycling yards for municipal waste, including hazardous household waste (at least one in each municipality), transfer stations according to the requirements of regional landfills, as well as lines for composting organic municipal waste. It is very important to drastically increase the coverage of the municipality with an organized collection of municipal waste, especially in rural areas, as well as to establish and further develop a payment system for the collection and disposal of municipal waste per generated quantity, to stimulate prevention and reuse. Finally, in the municipalities belonging to the regions where sanitary landfills are in operation, a program of reclamation of non-sanitary landfills and dumps is necessary. Preconditions for successful waste management public policies in under-developed municipalities include raising public awareness with information and educational campaigns for households and businesses on municipal waste separation and composting, but above all strengthening the capacity of local administration to work on waste management issues. When it comes to water quality and quantity, under-developed municipalities should immediately address the issue of providing sufficient quantities of water of appropriate quality for different categories of users, primarily to supply water to the population, while not endangering the environment. It is necessary to additionally protect springs and preserve water resources used for the water supply of settlements, or intended for future use (preparation of studies on sanitary protection zones of springs; changes in spatial plans, general urban plans, and detailed regulation plans following the requirements of the study, etc). In addition to increasing the coverage of municipal and other wastewater treatment, which under-developed municipalities conduct together with the Ministry of Environmental Protection, achieving and maintaining good status and good environmental potential of surface and groundwater bodies will directly depend on the further development of municipal infrastructure for wastewater management and increasing the coverage of households connected to the sewerage network. Last but not least, under-developed municipalities in Serbia must pay much more attention to the protection of biodiversity and nature, through the protection of existing forests and increasing the area under forests, as well as reducing negative impacts on biodiversity. A prerequisite for this is the improvement of institutional and administrative capacities for biodiversity and geodiversity conservation and better reporting on biodiversity and nature protection.

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THE IMPACT OF MERGER AND ACQUISITION ON SHAREHOLDERS WEALTH: EVIDENCE FROM MENA REGION

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ABSTRACT

The aim of this study is to examine the impact of mergers and acquisitions on shareholders´ wealth in the Middle East and North Africa (MENA) region. The study only includes the acquirer firms. The firms' sectors include banking, telecommunications, financial services, transportation, brokerage, energy, construction, industrial services and real-estate sectors. Event study is used to examine the impact and the market efficiency. Cross-sectional analysis is used to determine the factors that may impact the cumulative abnormal return. The sample includes 30 completed deals in MENA countries between 2011-2019. The event study findings show that there is an impact of merger and acquisition on the shareholders' wealth of MENA acquirer firms in multi days event windows. The results also show that 46% of the studied firms have a significant cumulative abnormal return in the event windows chosen, while 54% of the studied firms have a significant cumulative abnormal return after the announcement day. In addition, these results also confirmed that the market is inefficiently incorporating all available information which influences their chances of gaining or losing abnormal returns. Furthermore, findings of the cross-sectional analysis reveal that payment method has a negative statistically significant impact on cumulative abnormal returns. However, ownership percentage and industry type, and merger type have insignificant impacts on cumulative abnormal returns.

Keywords: *merger and acquisition, M&A, MENA, CAR, shareholders wealth, cumulative abnormal return*

1. INTRODUCTION

Globalisation and financial liberalisation have provided many opportunities for the growth of business processes around the world. Different approaches and growth strategies have been used by business corporations to utilise instruments to expand their operations and enter new markets. One of these growing and recognised techniques is merger and acquisition (M&A). Merger and acquisition are comparatively two different methods for developing businesses. A merger is the association between two or more corporations to create a new entity. While an acquisition is the taking over of the corporate´s activities from another one (Hui and Genberg, 2008). Mergers and acquisitions are proven to be effective growth approaches, since mergers and acquisitions allow businesses to produce more value, enhance their performance and expand their audience reach. This can be achieved more readily than operating with already restricted resources in separate silos. Many M&A deals are happening across the world. As per recent studies, over the last 20 years, international merger and acquisition has been the preferred technique for foreign direct investment (FDI) (Majidi, 2007). Since the 1970s, the economic performance of the MENA region has predominantly tracked oil price fluctuations. Oil prices rose in the 1970s, then fell during the 1980s-1990s before rising again in the first decade of the 2000s. This led to fluctuations in the MENA nations' economic performance and created difficulties with their development attempts. These changes in the oil prices challenged MENA region countries to consider new ways to achieve a quick and long-term economic development, such as M&A (Gattoufi, et al., 2009). The financial system growth in the MENA region varies by country, though is consistently seen as a significant instrument for the country´s economic development.

According to Levine (2003), countries with more advanced financial systems beat those with less developed ones. The majority of MENA nations have begun privatisation and financial liberalisation initiatives. They have also expanded the stock market by selling a portion of the government's equity holdings. Nonetheless, these steps have been insufficient. Increasing liberalisation of the global financial system has a significant impact on the MENA area. Moreover, the framework and competitive nature of its financial sector are constantly changing (Turk-Ariss, 2009). Merger and acquisition deals in different sectors in the MENA region are always trending online and are generally well-recognised. Furthermore, the enthusiasm for expansion is increasing in-borders and cross-borders inside the area, especially in GCC nations. Although the region has geopolitical and economic difficulties, such as reduced oil prices and the presence of the Arab spring, the mergers and acquisitions industry has remained unaffected. This might indicate that investor confidence remains high, or that corporations and private equity firms are looking for new markets to invest in. Alternatively, it might indicate that the regulators are accelerating and encouraging the region's overall movement toward consolidation. This is generally seen as the most effective way to overcome and alleviate the current unstable situation, decrease financial system risk and improve economic growth. The M&A boom in the Middle East began in 2014 as a result of a drop in oil prices. Energy-based economies were forced to reduce expenses and pursue efficiency as a result of the unexpected economic downturn. Recently, the Gulf Cooperation Council (GCC) countries have led the majority of M&A activity. Previous empirical studies examined the impact of mergers and acquisitions on the wealth of shareholders in different regions like the UK, US, and European countries. They also examined emerging countries such as Japan and China. However, studies that cover the whole MENA region are still limited. MENA area was selected for our academic research not only due to minimal existing papers on the subject, but also because the size and nature of the region's financial systems are continuously changing. This provides a breadth of information to be studied. This research aims to recognise the impact of mergers and acquisitions on shareholders' wealth of the acquirer firms in different industries in the MENA region. It achieves this by calculating the CAR for all acquired firms around the date of acquisition, then selects all significant values of the CAR to assess in the cross-sectional study. This will show the factors that impact shareholders' wealth. The study will focus only on the successfully completed deals and those where the acquired percentage is 51% and above.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1. Shareholders´ wealth

As per Brigham and Daves (2007) , the market value of a company's common share represents the discounted value of anticipated future cash flows for shareholders, which is characterised as shareholder wealth. This means that the value of a business' share to a shareholder is defined by the amount and reliability of the future cash flow generated by the shares for the shareholders. For instance, a company with less risky and higher consistent cash flows will be considered as being more valuable and produce more value for its stakeholders. As a result, the market value of a company's share, or the price at which it may be bought, is said to represent the market's assessment of the company's capacity to create consistent cash flows. That's why, the efficient market hypothesis is used to make this judgement in the domains of finance and economics (Makki, 2016). Therefore, this paper proposes the following hypothesis.

- $H1_{(a)}$: There is an impact on shareholders wealth of MENA region acquired firms

2.1.1. The Efficient Market Hypothesis

According to Malkiel (2003), the Efficient Market Hypothesis (EMH) assumes that asset prices completely represent all available information in efficient markets. As a result, any shift in equilibrium pricing will be attributable to the availability of data provided to market players.

Thus, if one agrees that market equilibrium circumstances are interpreted into expected returns and that these are based on a set of accessible information, no system could be created to allow abnormal returns (i.e., returns in extra of expected market returns) to be gained. As per Ross (2008), market efficiency is divided into three categories: weak, semi-strong, and strong. These groups describe how rapidly the market reacts to officially announced information, for instance, a merger announcement.

2.2. The Joint Hypothesis Problem in the market efficiency

Market efficiency is an essential theory introduced by Fama (1965). The author stated that to consider the market to be efficient, the prices should always ‘’fully reflect’’ all the available information (Fama, 1970). The joint hypotheses problem is more significant. As a result, market efficiency cannot be tested in itself. It must be examined in conjunction with an equilibrium model, such as an asset pricing model. This statement, which was the central subject of the study of Fama (1970), stated that we can only evaluate whether information is properly represented in prices within the framework of a pricing model that specifies what "properly" means. Thus, there are anticipated returns which may not compare to real returns. It is impossible to evaluate the abnormal returns without expected returns projected by pricing models. Consequently, uncharacteristic market returns might be the result of the market inefficiency, an incorrect asset pricing model or both. Therefore, this paper proposes the following hypothesis.

- $H1_{(b)}$: The market is inefficiently incorporated all available information in MENA region.

2.3. Merger and Acquisition payment methods

There are 3 ways to fund M&A deals: cash, stock or a mixture of both. According to Sherman (2011), a cash payment approach is the easiest way to pay for an M&A deal. In this way, the entire transaction value releases via cash payment. The main benefit of using cash as a payment method is that the company´s stockholders’ ownership and earnings per share are not mixed. In a share-financing approach, shares are offered to the target company´s stockholders by the acquiring firm. As a result, the shareholders of the target business become the shareholders of the acquiring firm. According to Kang & Kim (2008), the stock-financed transactions are preferable since they allow for control by current shareholders of the target business. Scholars are still debating on the influence of payment methods on shareholder wealth. Therefore, this paper proposes the following hypothesis.

- $H1_{(c)}$: Payment method has a positive impact on cumulative abnormal returns.

2.4. Merger and Acquisition types

As per Cartwright and Cooper (2014), M&A may be classified into four groups vertical, concentric, horizontal and conglomerate. In a Vertical type, two entities in the same industry are combined together through a series of procedures that influence the corporation's performance and development to serve distinct supply chain roles for the same item or service. On the other hand, the Horizontal type permits two similar businesses in the same industry to be merged. Though, the Conglomerate type is used when the acquiring entity is completely unconnected to the activities of the other corporation. Nevertheless, a Concentric merger exists when 2 firms join together to supply different goods and services to the same customers in the same industry. When these companies collaborate, they may benefit from shared technology, promotions and sales platforms, which can enable them to reach synergy. Therefore, this paper proposes the following hypothesis.

- $H1_{(d)}$: Merger type has a positive impact on cumulative abnormal returns.

3. RESEARCH DESIGN

The daily stock prices were collected from Bloomberg and DataStream. While the other merger deals details were collected from the Thomson One Banker database. The study will follow two techniques to evaluate the shareholders´ wealth of organisations undergoing mergers and acquisitions in MENA different sectors. The first technique will use the event study methodology, which is used to calculate the cumulative abnormal return around the event day for all the acquired firms. This will help to understand whether the investors believe that the merger will create additional value for the firm or will destroy it. The second technique will be the cross-sectional analysis which will use the calculated significant cumulative abnormal returns (CARs) for the selected data along with several variables which will be explained later.

3.1. Event study

The event study is a statistical technique to evaluate the influence of a specific event on the firm. It is one of the most used empirical approaches in the finance and accounting fields. Fama, Fisher, Jensen and Roll (1969) established the event study approach to assess changes in stock prices as a result of an event or announcement. The event study may be applied for any sort of event to determine the magnitude and trend of movement in the share price of the listed company. As per the efficient market theory, the impact of an event will directly be replicated in the stock prices. The purpose of the event study is to determine the additional profits or losses experienced by shareholders as a result of the event in which they are engaging.

3.1.1. The estimation window and the event day:

The estimation window is applied to assess the expected return of the shares. The estimation period should be sufficiently long to create an appropriate measurement of returns. However, if the period is too long, it can cause a bias in information from any changes or further events with other companies. In our research, we will set a study period of 200 days before the announcement and 30 days after the announcement. We excluded the weekends and the national holidays for every country to purely cover the trading days within this period. The estimation periods for the sample are different due to the different trading days for every country. However, in all the samples the observation will not exceed 200 calendar days prior to the announcement. Additionally, ten days are also left as a clean window (-20, -11). The event day is defined as the date when the announcement happened and is usually called day 0. The following step is to choose the event windows which will be used to evaluate the impact of the merger announcement on shareholders wealth in the short-term. Moreover, analysing the effect of announcements over several event windows will help to evaluate the reliability of the results. The chosen event windows are as follow:

1) Event windows of 3 trading days: CAR (-3, -1), CAR (-5, -3) and CAR (-1, 1)
2) Event window of 4 trading days: CAR (0, 3)
3) Event window of 6 trading days: CAR (0, 5)
4) Event window of 7 trading days: CAR (-3, 3)

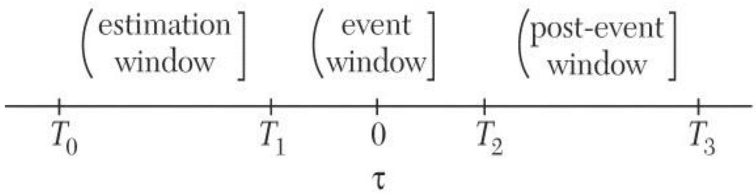

Figure 1: Analysis of effect of announcements over several event windows (Source: MacKinlay (1997))

By using Microsoft Excel, we will calculate the Expected return(ER), using the market model approach, we calculate the abnormal return(AR) and the cumulative abnormal return(CAR), Finally, the statistical significance test for the event windows(T) was calculated.

3.2. Cross sectional analysis

A cross-sectional study is an experimental study that examines the data by observing several factors at the same period of time. Theoretical approaches typically indicate that there should be a link between the magnitude of abnormal returns and event-specific factors. The cross-sectional analysis of cumulative abnormal returns on the factors of interest is a useful approach for investigating this relationship. SPSS database was used to run the regression to analyse the data. However, three types of variables were used in this analysis to test the study hypothesis: dependant, independent and dummy. The variables are explained below.

3.2.1. Dependant variable

In our regression, the dependant variable will be the statically significant values of cumulative abnormal returns (CARs), which were calculated in the event study for every single firm in the sample.

3.2.2. Independent variable

In our regression, the ownership percentage will be the independent variable, which is the acquirer share in the purchased company.

3.2.3. Dummy Variables

Three dummy variables will be in our regression as follows:

- Industry type: financial industry will take a value of 1, 0 otherwise.
- Payment method: cash payment will take a value of 1, 0 otherwise.
- Merger type: horizontal merger will take a value of 1, 0 otherwise.

3.2.4. The Regression Model

Estimated regression model equation is outlined as below:

$CAR= \alpha + \beta_1$* ownership + β_2* industry type + β_3 *payment method + β_4*merger type + ε_t

Where: ε_t is error term.

3.3. The sample selection

In our study, we randomly selected a total of 30 listed firms who experienced M&A in the MENA region between 2011-2019. As discussed earlier, all M&A deals in the sample are completed deals and the acquirer ownership portion is set at 51% and above. The firms were selected from ten countries in the region namely: Oman, Bahrain, United Arab Emirates, Kingdom of Saudi Arabia, Qatar, Kuwait, Egypt, Morocco, Lebanon and Jordan. The acquirer business types are banking, telecommunication, energy, real estate, insurance, construction, brokerage, industrial services and transportation.

4. DATA ANALYSIS

4.1. Event study outcomes

Table 1 summarises CAR values for the studied event windows of 46% of MENA studied firms with the T statistic test for each event window. T statistical significance test shows that M&A announcements have an impact on shareholders wealth in at least in one of the studied event windows. For instance, in UAE, ADIB shareholders have received a positive abnormal return of 8.8% which is statistically significant at 1% confidence level in the window (-5, -3) prior the announcement.

However, ADIB shareholders experienced a negative CAR of -6.8%, which is statically significant at 10% confidence level in the window (0,5) from the announcement day until day 5 after the announcement. It was also noted that with FAB and Al Dar in UAE, shareholders earned positive abnormal returns which are statistically significant at 1% confidence level in the following windows: (-1, 1), (-3, 3), (0, 3) and (0, 5). In the case of Oman, OIFC shareholders gained a positive abnormal return in all studied windows at significant levels of 1% and 5%. HSBC Oman shareholders a positive significant abnormal return of 7.5% at 1% confidence level in the event window (-1, 1), while their earnings were positively significant at 5% in the following windows: (-3, 3), (0, 3) and (0, 5).

Name												
	CAR (-3, -1)	**T stat**	**CAR (-5, -3)**	**T stat**	**CAR (-1,1)**	**T stat**	**CAR (-3,3)**	**T stat**	**CAR (0,3)**	**T stat**	**CAR (0,5)**	**T stat**
ADIB	-0.017	0.684	0.088	**3.464*** **	-0.039	1.538	-0.055	1.424	-0.038	1.291	-0.068	**1.897***
AL Dar	-0.041	1.367	0.044	1.477	0.129	**4.278*** **	0.144	**3.122*** **	0.186	**5.315*** **	0.128	**2.993*** **
FAB	0.026	0.921	-0.014	0.494	0.13	**4.586*** **	0.174	**4.02*** **	0.148	**4.521*** **	0.132	**3.286*** **
Emaar	0.022	1.167	-0.001	0.096	0	0.028	-0.003	0.126	-0.025	1.178	-0.045	**1.698***
Dubai invest.	-0.040	**1.704***	0.013	0.572	-0.006	0.285	-0.060	**1.664***	-0.019	0.725	-0.037	1.115
Ithmaar bank	-0.025	0.337	-0.021	0.288	-0.186	**2.499****	-0.239	**2.108****	-0.214	**2.496****	-0.052	0.499
Byblos	0.003	0.289	-0.006	0.541	0.031	**2.432****	-0.003	0.166	-0.006	0.471	-0.012	0.691
Natl Shipping co	0.081	**2.257****	0.041	1.148	0.164	**4.544*** **	0.114	**2.064****	0.032	0.776	-0.023	0.453
Agility	-0.104	**3.323*** **	-0.005	0.189	-0.017	0.547	-0.055	1.154	0.049	1.35	0.049	1.113
HSBC Oman	0.001	0.099	0.011	0.646	0.075	**4.307*** **	0.053	**2.011****	0.051	**2.574****	0.05	**2.045****
OIFC	0.066	**2.532****	0.079	**3.044*** **	0.128	**4.888*** **	0.227	**5.696*** **	0.161	**5.341*** **	0.133	**3.593*** **
Ominvest	-0.006	0.484	0.014	1.037	0.012	0.927	0.057	**2.714*** **	0.063	**4.011*** **	0.046	**2.365****
Lafargeholcim	-0.029	0.955	-0.018	0.615	-0.04	1.323	0.031	0.684	0.06	**1.733***	0.054	1.258
Attijariwafa bank	-0.004	0.321	-0.007	0.517	0.033	**2.448****	0.05	**2.438****	0.055	**3.503*** **	0.043	**2.271****

*Table 1: Summary of CAR values in different event windows of 46% of MENA studied firms with t statistic test. ***, ** and * indicate significance at 1%, 5% and 10% respectively.*

All t stat values have been converted into modulus implying all the values have positive sign. However, Table 2 shows that in 54% of MENA studied firms, the outcomes indicate that shareholders didn't receive any cumulative abnormal return in the studied event windows as the T statistic tests were insignificant.

Table following on the next page

Name												
	CAR (-3, -1)	T stat	CAR (-5,-3)	T stat	CAR (-1,1)	T stat	CAR (-3,3)	T stat	CAR (0,3)	T stat	CAR (0,5)	T stat
Al Ahli Ku	0.005	0.232	0	0.020	0.012	0.533	0.002	0.083	-0.002	0.090	-0.005	0.159
KFH	-0.001	0.062	0.008	0.393	0.003	0.149	-0.015	0.463	-0.014	0.559	0	0.028
Warba Bank	-0.016	0.706	0.001	0.053	-0.029	1.247	-0.031	0.873	-0.014	0.543	-0.023	0.699
Zain Ku	-0.012	0.432	-0.001	0.051	0.012	0.445	-0.011	0.270	0	0.016	0.029	0.756
Orascom	-0.003	0.146	0.002	0.117	-0.005	0.218	0.015	0.420	0.019	0.683	0.034	0.997
EFG	-0.009	0.458	0.010	0.500	0.013	0.677	0.008	0.259	0.017	0.740	0.027	0.976
First Insurance	0.029	1.028	-0.015	0.538	-0.042	1.502	0.039	0.903	0.010	0.303	0.006	0.163
TAQA	0.006	0.295	-0.003	0.173	0	0.005	-0.012	0.386	-0.018	0.766	0.004	0.137
DIB	0.001	0.091	0.008	0.564	0.012	0.786	0.015	0.637	0.013	0.763	0.014	0.667
ENBD	-0.008	0.434	-0.001	0.071	-0.002	0.140	-0.012	0.414	-0.004	0.172	-0.005	0.179
RAK	0.018	0.486	0.008	0.233	-0.013	0.353	0.015	0.263	-0.003	0.072	0.022	0.415
QNB1	0.004	0.722	0	0.079	0.001	0.297	0.002	0.243	-0.002	0.304	-0.002	0.243
QNB2	0.016	1.000	-0.007	0.488	-0.004	0.282	0.015	0.627	0	0.036	0.019	0.867
Al Salam Bank	0.037	0.601	-0.048	0.787	0.100	1.626	0.148	1.562	0.110	1.545	0.084	0.967
Saudi British Bank	0.005	0.202	0	0.025	-0.004	0.187	0.010	0.265	0.005	0.175	-0.004	0.129
Saudi Telecom.	-0.021	0.803	-0.028	1.045	0.013	0.499	0.009	0.225	0.030	0.993	0.003	0.087

Table 2: Summary of CAR values in different event windows of 54% of MENA studied firms with t statistic test. T test was insignificant in all studied event windows.

All t stat values have been converted into modulus implying all the values have positive sign. Although, Table 2 didn’t show any significant impact of 54% of the studied firms, Table3 illustrates that shareholders of these firms have earned positive statistically significant cumulative abnormal returns in different event windows. Some of them have witnessed the impact on more than one event window, while others only observed the impact in one event window. In all cases, with the exception of one firm, the positive statistically significant CARs have been observed after the announcement day. This means that shareholders have reacted positively to the merger news.

Table following on the next page

Name	CAR Event window	CAR value	T test
Al Ahli Ku	CAR(10,14)	0.109	3.644***
KFH	CAR(4,6)	0.036	1.700*
Warba Bank	CAR(-12,-10)	0.039	1.667*
Zain Ku	CAR(13,15)	0.047	1.693*
Orascom	CAR(9,12)	0.075	2.721***
EFG	CAR(12,14)	0.161	7.993***
First Insurance	CAR(6,10)	0.103	2.806***
TAQA	CAR(5,8)	0.102	4.160***
DIB	CAR(6,8)	0.031	2.017**
ENBD	CAR(12,18)	0.104	3.396***
RAK	CAR(9,11)	0.064	1.696*
QNB1	CAR(6,15)	0.020	1.714*
QNB2	CAR(1,6)	0.04	1.790*
Al Salam Bank	CAR(0,2)	0.133	2.156**
Saudi British Bank	CAR(9,12)	0.097	3.358***
Saudi Telecom.	CAR(7,10)	0.056	1.812*

*Table 3: Summary of the event windows of 54% of the sample which have a statistically significant CARs with T test. ***, ** and * indicate significance at 1%, 5% and 10% respectively.*

4.1.1. CARs graph for the studied event windows

Figure 1 outlines the CARs values in the studied event windows which are: CAR (-3, -1), CAR (-5, -3), CAR (-1, 1), CAR (-3, 3), CAR (0, 3) and CAR (0, 5). The figure shows that the maximum loss for shareholders was around 24%, while the maximum gain was 22.78%.

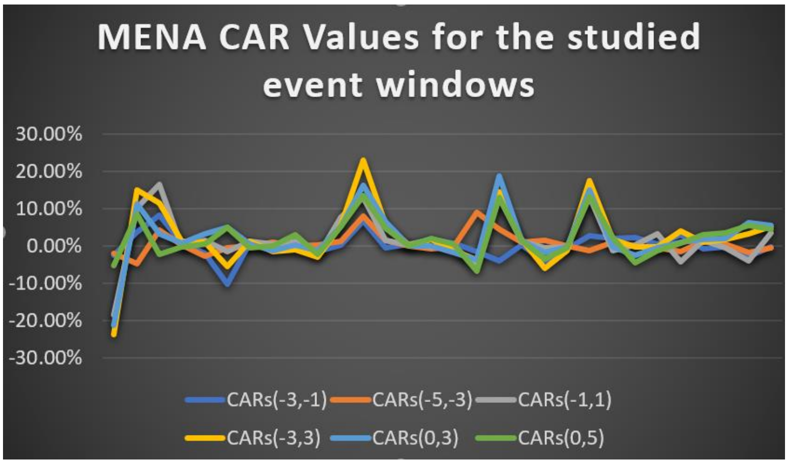

Figure 1: CAR values for the studied event windows for the whole sample of the MENA region between 2011-2019.

4.1.2. ANOVA test for the clean window

Analysis of variance (ANOVA) is a set of statistical concepts and related estimate processes that are used to examine variations across means. In our sample, we run an ANOVA test for the share returns and the market returns for all clean windows in our sample (-21, -11).

The results show that the data selected for the estimation period is a fair representation of the clean window. The evidence for this was the insignificant P P-value which is greater than 0.05

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
-0.013680086	9	-0.01229	-0.00137	0.00012
0.000835558	9	-0.02468	-0.00274	9.85E-05

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	8.52E-06	1	8.52E-06	0.078114	0.78345	4.493998
Within Groups	0.001745	16	0.000109			
Total	0.001754	17				

Figure 2: ANOVA test for one firm

4.2. Cross sectional analysis

4.2.1. Descriptive statistics

Table 4 presents descriptive statistics driven by SPSS. The results show that the mean of the ownership percentage is 87.9%, while the means for industry type, payment method and merger type have the same value of 73%. The standard deviation of the ownership percentage is 17.7%, while the standard deviation is identical for industry type, payment method and merger type which is 45% for all.

Variables	N	Mean	St. Deviation
CAR	30	0.074	0.039
Ownership percentage	30	0.879	0.177
Industry type	30	0.73	0.450
Payment method	30	0.73	0.450
Merger type	30	0.73	0.450

Table 4: Descriptive statistics

4.2.2. Correlation matrix

Table 5 presents Pearson correlation outcomes. The results show that there is a weak positive insignificant correlation between the cumulative abnormal return and ownership percentage, industry type and merger type. However, there is a negative moderate correlation between cumulative abnormal return and the payment method with a statistically significant correlation at a confidence level of 5%. Ownership percentage has weak positive insignificant correlations with industry type and merger type, while a negative moderate negative correlation was found between ownership percentage and payment method with statistically significant correlation at confidence level of 5%. Additionally, a negative weak insignificant correlation was observed between industry type and payment method, while there is a positive weak insignificant correlation between industry type and merger type. Furthermore, a negative weak correlation was found between the payment method and the merger type with statistically significant correlation at 5% of confidence level.

Variables	CAR	Ownership percentage	Industry type	Payment Method	Merger type
CAR	1				
Ownership Percentage	0.191	1			
Industry type	0.053	0.319	1		
Payment method	-0.403**	-0.418**	-0.23	1	
Merger type	0.073	0.323	0.148	-0.364**	1

*Table 5: Correlation matrix for the overall sample. ** Indicates a statistically significant level at 5%.*

4.2.3. Regression analysis

Table 6 highlights the regression results using the significant cumulative abnormal returns (which were calculated in the event study) as a dependant variable. The results show that there is a very weak positive insignificant relationship between CAR and ownership percentage, and the correlation is very close to 0. Similarly, there is a positive insignificant relationship between CAR and industry type. In addition, there is a negative insignificant association between CAR and merger type. However, the outcomes show that a negative significant association between CAR and payment method at 5% confidence level which means if M&A deal was financed by cash payment, the shareholders' wealth which is represented by CAR, decreased by 3.8%. The adjusted R-square displays how much of the variance in the dependent variable can be explained by the independent variables. In our study, adjusted R-square is 4% which means 4% of the dependent variable (CAR) can be explained by the independent variable, while the remaining 96% can be explained by other aspects or variables. Additionally, the Durbin Watson test is used to identify the existence of autocorrelation at lag 1 in the residuals from the regression analysis. The value usually ranges between 0 and 4. A value of 2 means that there is no autocorrelation identified in the sample. However, a value between 0 and less than 2 means there is a positive autocorrelation. While the values between 2 to 4 indicates that there is a negative auto correlation. Since the Durbin Watson value in our sample is 1.960 which is very close to 2, we can state that there is no autocorrelation problem identified.

Independent variables	
Ownership percentage	6.558E-5 (0.135)
Industry type	0.004 (0.249)
Payment method	-0.038 (2.027)**
Merger type	-0.009 (0.490)
Constant	0.099
F statistic	1.304
R square	0.173
Adjusted R square	0.04
Durbin Watson Value	1.960
Number of observations	30

*Table 6: OLS regression results, ** indicates a statistically significant level at 5%. The values between parentheses are t values.*

All t stat values have been converted into modulus implying all the values have positive sign.

4.2.4. Multicollinearity examination:

Table 7 displays the collinearity statistics which are represented by tolerance and VIF. Since the tolerance values are greater than 0.1 and VIF values are less than 10, no multicollinearity problem exists.

	Collinearity statistics	
Variables	**Tolerance**	**VIF**
Ownership percentage	0.710	1.408
Industry type	0.876	1.141
Payment method	0.750	1.333
Merger type	0.826	1.211

Table 7: Multicollinearity test for independent variable and dummy variables

5. RESEARCH FINDINGS AND CONCLUSION

5.1. Event study results

The evidence reveals that in the MENA region, mergers and acquisitions have an impact on shareholders wealth of the acquirer firms in all studied sectors. Additionally, the study found that the market is inefficiently incorporating all available information to allow investors to gain or lose an abnormal return above the predicted range. These outcomes are the first in the MENA region. As such, they prove that there is an impact from mergers and acquisitions on the wealth of shareholders in MENA acquiring firms. These results are supported by a study from Jager (2018), which focuses on the acquiring firm's shareholders wealth in Western Europe between 2010-2017 using the event study methodology. This study also revealed that there was an impact on the wealth of shareholders from the acquiring firms. The results are similarly mirrored in another study by Kashiramka and Rao (2013), who studied the impact of M&A on shareholders wealth in India between 1999-2009. They similarly found that M&A had an impact on acquiring shareholders wealth across all periods.

5.2. Cross sectional results

The evidence shows that in the MENA region, the payment method has a negative significant impact on cumulative abnormal returns (CARs). More specifically, the shareholders of the acquiring firms experience a loss in cumulative abnormal returns of 3.8% if the deal is financed with cash. This suggests that deals financed with cash will create lower CARs compared to the other payment methods. The reason behind this might be that the investors perceive cash payment as a negative sign, as it indicates that the acquirer will use debts to finance the deal. They may be concerned that this funding option will consequently raise the acquirer´s debt portion. If the debt is carried by the acquirer after the deal, they may also be concerned it will negatively impact the shareholders' wealth. This concern appears supported by a study from Yousef (2016). He studied the impact of M&A on shareholders wealth in 180 countries between 1977-2012. He found that the acquirer shareholders received the lowest cumulative abnormal return when the deal was financed by cash. Another study by Gisella and Chalid (2017) studied M&A for public companies in Indonesia between 2005-2014. They found that cash payment had a significant negative impact on the cumulative abnormal returns for the acquirer companies. In contrast, the research results show that the ownership percentage of the acquirer has a positive insignificant impact on cumulative abnormal returns. The correlation value is very close to 0, which indicates that the ownership percentage doesn't have an impact on CARs. Our findings are supported by a study from Shekhar and Torbey, (2005). They studied the acquisitions of Australian companies between 1994-2001. They found that the ownership didn't have any impact on the announcement returns.

Additionally, the type of industry has a positive insignificant impact on cumulative abnormal returns. The outcome suggests that there is no relationship between the industry type and shareholders wealth. Furthermore, the merger type has a negative insignificant impact on cumulative abnormal returns. This indicates that there is no merger type impact on the wealth of shareholders.

5.3. Conclusion

In conclusion, this paper is an attempt to examine several hypotheses that have been mentioned in past literature. As previously discussed, the purpose of this study is to fill the gap by studying the impact of merger and acquisition on shareholders wealth in the MENA region by using the event study methodology and cross-sectional analysis. Our findings indicate that there is an impact from mergers and acquisitions on acquirers' shareholders in the MENA region. Additionally, there is a negative significant relationship between the deal payment method and cumulative abnormal returns. However, there is an insignificant positive relationship between ownership percentage, industry type and cumulative abnormal return, while there is an insignificant negative relationship between merger type and cumulative abnormal returns.

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SUSTAINABLE TOURISM DEVELOPMENT, EVIDENCE BASED APPROACH

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ABSTRACT

Tourism has experienced continued expansion and diversification over the past decades, becoming one of the world's largest and fastest growing sectors, with significant effects on the economy, society, and environment. However, tourism can lead to environmental degradation and the loss of local identity. As a result, the necessity for long-term tourist development is becoming increasingly apparent. Sustainable tourism is an economic sector that has no harmful impact on the environment and local culture, while also contributing to revenue production, employment, and the preservation of local ecosystems. This study analyses the existing literature and evidence on the development of sustainable tourism, as well as considering real studies in which sustainable practices have been implemented in the development of tourism in order to have greater evidence of them. Success stories such as Dubai, Malaysia, Thailand and Indonesia were analyzed, as well as corporate responsibility demonstration cases such as Marriott and Hilton. It was concluded that The evidence analyzed has shown that the coexistence of profitable tourism with sustainable practices is possible and feasible.

Keywords: *Sustainable tourism, tourism development, sustainable practices, eco-tourism*

1. INTRODUCTION

Tourism has witnessed considerable development and diversification over the last decades (Jones et al., 2016), becoming one of the world's largest and fastest expanding industries, with significant implications on the economy, society, and environment (Modica, 2020, Mihalic, 2016). Tourism, in addition to its monetary influence, might be a role in environmental preservation, promotion, and cultural appreciation and understanding among people if handled properly (UNWTO, 2016, Gopalakrishnan et al., 2012). Tourism, on the other hand, has the potential to degrade the environment and erode local identity (Mihalic, 2016). As a result, the necessity for long-term tourist development is becoming increasingly apparent. Sustainable tourism is an economic sector that has no harmful impact on the environment and local culture while also contributing to revenue production, employment, and the preservation of local ecosystems (Cole and Browne, 2015). The hotel business is perceived to be hesitant to adopt the sustainability concept (Trang et al., 2019). However, given the effects that hotels have on the environment and local populations (de Grosbois, 2012), sustainability has recently become an "important question" for hotels (Jones et al., 2016, Deloitte, 2014). In fact, hotels' response to rising customer awareness of sustainability (Font & McCabe, 2017; Han et al., 2018) is shown in it being the primary factor of doing business in the hotel sector (Hossein et all, 2020, Han et al., 2018; Law et al., 2016). Hotel industry, as a main contributor to tourism (Hossein et all, 2020, Mihalic, 2016; Wanger and Gursoy, 2010), must maintain environmentally responsible standards to ensure that hotels can reduce their negative impact on the environment, while still providing high-quality service to hotel guests. The existing literature suggests that hotels are presenting the focal points for sustainable tourism development (Modica, 2020, Trang et al., 2019, Mihalic, 2016, Eric et all, 2014), as they have a great impact on the environment through their water consumption, energy consumption, and waste generation (Hossein et all, 2020).

This study analyses the existing literature and evidence on the development of sustainable tourism, as well as considering real studies in which sustainable practices have been implemented in the development of tourism in order to have greater evidence of them.

2. REVIEW OF LITERATURE

Sustainability is defined as a "keeping the business running" tool, but it is also used to describe "future-proofing" for enterprises, with the goal of establishing a successful present without jeopardising the integrity of the future (Ivanov, Seyitolu, & Markova, 2020; Zarta, 2017; Fredriksson, 2015). Furthermore, sustainability is described as the capacity to address future generations' demands while successfully serving present consumers' expectations (Constitutive Act of the Sustainability Committee, 2019). As a result, a sustainable company strategy must focus on providing constant value while also taking into account long-term environmental, financial, and social preservation (Saarinen, 2018). Tourism has grown and diversified over the last few decades, becoming one of the world's largest and fastest expanding industries, with significant implications on the economy, society, and environment (Trang et al., 2019, Mihalic, 2016). Tourism, in addition to its monetary influence, might be a role in environmental preservation, promotion, and cultural appreciation and understanding among people if handled properly (UNWTO, 2016; Jones et al., 2016). Tourism, on the other hand, has the potential to degrade the environment and erode local identity (Modica, 2020, Font & McCabe, 2017, Mihalic, 2016). As a result, the necessity for long-term tourist development is becoming increasingly apparent. Sustainable tourism development entails the following sustainable tourism practises: I optimal use of natural resources while preserving ecological processes, natural heritage, and biodiversity; (ii) respect for the community's social and cultural values, preserving cultural heritage and traditional values with intercultural understanding and tolerance; and (iii) long-term planning for improving economic opportunities and alleviating poverty with a constant c (Hossein et all, 2020, Eric et all, 2014, Stern, 2010). According to the available literature, hotels are recognised as a focal point for sustainable tourism development (Hossein et al., 2020; Han et al., Trang et al., 2019, Mihalic, 2016; Choi and Sirakaya, 2005, Bianchi 2004), as they have a significant impact on the environment through water consumption, energy consumption, and waste generation (Hossein et all, 2020; Jones et al., 2016). As a major contributor to tourism, the hotel sector (Han et al., 2018, Font & McCabe, 2017; Wanger and Gursoy, 2010) must maintain ecologically responsible standards to guarantee that hotels may decrease their negative environmental effect while still offering high-quality service to hotel guests. Nonetheless, doubts have been raised about the motivations motivating hotels' adoption of sustainable measures (Font & McCabe, 2017; Wymer & Polonsky, 2015). Many sustainability programmes are implemented primarily for the financial benefits connected with cost-cutting or to improve business image (Khan et al., 2018) and establish community links and staff loyalty through greenwashing initiatives (Jones et al., 2016, Font et al., 2012). A favourable association between profitability and the implementation of sustainable practises has been discovered (Hossein et al., 2020), which is thought to be the consequence of a beneficial effect on customer perceptions, attitudes, and behaviours (Molina-Azorin et al., 2009). Given the growing customer awareness of the importance of eco-friendly and responsible consumption (Cronin et al., 2011; Sheth et al., 2011), an increasing number of hotels are implementing sustainability strategies (Moise et al., 2018). Many research has focused on the incentive for hotel engagement in sustainable practises (Hossein et all, 2020, UNWTO, 2018, 2019, 2016; Eric et all, 2014, Kasim, 2009; Molona et al., 2009). A large variety of publications investigate hotel managers' views, experiences, and opinions of sustainable tourism practises in various nations (Hossein et all, 2020, UNWTO, 2018; Grey & Grorge, 2010). Some studies explore the perceived problems and constraints to hotel management practise implementation (Modica, 2020, Han et al., 2018, Font & McCabe, 2017).

Sustainable tourism planning is the most effective way to reduce or avoid irreversible environmental damage while also minimising social, environmental, and economic costs that affect tourist destinations and optimising the benefits of tourism development (Seraphin et al., 2018, Macário de Oliveira & Pasa Gómez, 2015). This has progressed to the point that groups like the World Tourism Organization (UNWTO) encourage nations to consider sustainability as a global priority (Saarinen, 2018). Sustainable tourism is an economic sector with a low environmental and cultural effect that promotes money generating, job creation, and ecosystem preservation (Hossein et al, 2020). Sustainable tourism requires the optimal use of natural resources while preserving ecological processes and cultural heritage. It is also necessary to respect the community's social and cultural values, as well as to consider constant planning to improve local economic conditions and contribute to the social progress of the area. The evidence suggests that there is currently a greater need for organisations to demonstrate "socially desirable behaviour," possibly due to a greater societal awareness of the impact of organisations on the environment, so that these entities choose a business strategy to achieve sustainable growth (Blaga, 2018). Many sustainability projects are implemented to maximise financial benefit or to improve business image, community partnerships, or employee loyalty (Bourne, Jenkins, & Parry, 2019, Khan et al., 2018; Jones et al., 2016).

2.1. Why is sustainable tourism crucial?

The future of tourism depends on sustainability (Lane, 2018). As a result, assessing the environmental repercussions of industry has become a worldwide problem (Bai and Bai, 2014). The tourist business has not been an exception; in fact, it is a critical aspect since tourism relies on natural resources for its survival, conservation of the environment, and continued expansion of the activity (SolimarInt, 2018). Today's new tourist trends are concerned with nature and its preservation; in the tourism industry, they are referred to by many terms such as ecotourism, sustainable tourism, agrotourism, rural tourism, and nature tourism, among others (Nordic Council of Ministers, 2018). Tourism industry is one of the world's greatest economic sectors, accounting for 10.4% of global GDP and 334 million jobs, or 9.9% of overall employment in 2019. A statistic that was severely reduced the following year due to the COVID -19 pandemic, with 62 million jobs lost and just 5.5% of global GDP in 2020. (WTTC, 2021). Nonetheless, tourist activity fosters a stable economy by permitting foreign currency revenue, job creation, and the expansion of company prospects, all of which contribute to the population's economic progress. Although there are several advantages to the tourist industry, there are also negative elements that have an influence on the social, environmental, and cultural realms, which are generated by the modification of spaces and localities as a result of tourism development (Garca and Martinez, 2017). Today, the majority of tourism began in endangered ecosystems. As a result, many habitats, such as tiny islands, rural regions, and coastal areas, are deemed susceptible to excessive human activity. Without a doubt, tourism has a negative and diversified influence on natural regions (Agüera, 2014). Despite the fact that visitors engage in low-impact activities in small groups, they have negative consequences known as "diffuse impacts" (Zimmermann, 2018). They are less severe than the preceding ones, but they can reach a greater region, changing the environmental conditions in places that are not only dedicated to tourism services. Finally, it assigns those caused by the number of tourists that visit a location at the same time; that is, the more people who visit a certain region, the greater the effect on the natural environment (SolimarInt, 2018).

2.2. Challenges and opportunities of sustainable tourism

While the notion of sustainable tourism is spreading over the world, its practical application continues to face problems (Day, 2018). The first problem that these methods face is that tourism is a complex adaptive system with many diverse players, which necessitates collaboration among numerous enterprises to supply specialised products and services to passengers (Lu and Nepal, 2019, SolimarInt, 2018). Furthermore, because tourism lacks a "top-down" structure, National Tourist Authorities (NTA) have attempted to transfer the duty of centralising travel and tourism concerns to governments through regulatory roles and regulations.

2.3. Tourism and COVID-19
The COVID-19 crisis has created uncertainty throughout the world and in many areas of the economy, since they are now unable to forecast the future. Tourism is one of the industries most touched by this fact, and it will be one of the most affected in 2020 (Higgins, 2020, WTTC, 2021; UNWTO, 2020). This is because tourism promotes socioeconomic development by creating jobs (among other things), reducing poverty, and increasing affluence by giving unique possibilities for women, minorities, and youth (WTTC, 2021). The epidemic also posed a challenge to sustainability and tourism. This sector has experienced several obstacles, including communication, security, marketing, and digitalization (WTTC, 2021). Nonetheless, its ability as a job creator is outstanding, with the majority of work performed by micro, small, and medium-sized businesses (Goh, 2021). The COVID-19 epidemic, on the other hand, has left its impact on worldwide tourism, particularly the hotel subsector and its full value chain (Duro et al, 2021).

2.4. Greenwashing
Society is paying greater attention to its influence on the earth and has begun to be interested in methods to implement sustainable practises (Antari, N, & Connell, 2021). Customers, however, fall for an ecologically responsible public image that firms wish to offer owing to ignorance and a false feeling of duty (Peiris and Nishadi, 2019). Still, it is an erroneous or purposely false image, and tourist firms and institutions are not immune from engaging in some actions in order to look environmentally friendly to the public (Goverder & Govender, 2016).
The emergence of greenwashing has met the recent desire for sustainable tourism (Kaur and Singh, 2019). Companies make inaccurate or overstated promises about sustainability in order to obtain market share. Greenwashing has been present since the late 1980s, but it has lately become more prevalent due to increased demand for sustainable alternatives. More than 90% of sustainability promises in commercial ads have been proven to be bogus since 2009. Misleading advertising also affects the tourist sector (Yang, et al., 2020). For example, at least half of all UK lodging providers have engaged in greenwashing (Pile, 2017).

3. SUSTAINABLE TOURISM PRACTICES ACROSS GLOBE
3.1. Cultural tourism in Indonesia, Thailand and Malaysia
An interesting example of sustainable tourism is the efforts undertaken in Indonesia to promote cultural events (Astawa et al 2018). The notion of a tourism village in Indonesia is comparable to earlier research findings that balance the economics, socio-cultural, and environment, with a greater emphasis on culture. The three components coexist in the tourism village, resulting in a sustainable tourism village. The Indonesian government promotes tourism villages in order to progress villages and revenue sharing. The programme has been running since 2013 and is based on the number of international visitors that visit Indonesia, with 38.45% of them visiting Bali (Dinas, 2016a). The number of international visitors visiting Bali in 2015 was 4.001.835, while the number of domestic tourists was 7.147.100. (Dinas, 2016b). The tourism development plan, based on the concept of numerous tourism villages, will have an impact on the development of new infrastructure, the increase in waste production, the alteration of ecosystems, the introduction of exotic species of animals and plants, the loss of traditional habits, and the increase in the prices of goods and services (Belsoy, Korir and Yego, 2012).

Other consequences included an increase in crime and drug usage as a result of a lack of social interaction with the locals. Bali, a small island, will undoubtedly face worrisome challenges as a result of these repercussions. Sustainable tourism is a constructive strategy aimed at reducing the tensions and friction caused by the complex relationships between the tourist sector, visitors, the environment, and the communities that host vacationers (Astawa et al 2018). Previous research has shown that sustainable tourism is becoming increasingly crucial in preserving the natural balance in a tourism town. Sustainable tourism development is concerned not only with the environment, but also with the past and future well-being of the community (Belsoy, Korir and Yego, 2012). Furthermore, culture is a source with the ability to grow tourism, such as the peaceful culture applied in Bali, which has allowed Ubud Village to remain one of the top international destinations to present (Astawa et al 2018). The harmonic culture, known as tri hita karana (the three reasons of happiness), is a sustainable idea that the World Trade Organization has approved for use in the tourist business. The primary cultural principle is to preserve harmony with the creator of nature and its content through religious rituals such as worship rites. The actions have turned into a tourist attraction (Astawa et al 2018). The second principle is to preserve natural harmony with other humans without differentiating one another. The principle is put into action by the incorporation of culture and religion that respects humans from birth through death, such as the ngaben ritual at funerals. The third notion is preserving harmony with nature, in which society maintains the environment well because they feel that doing so is a kind of devotion to God; hence, the process of environmental conservation is structured in custom and religious norms (Astawa et al 2018). Harmonious culture is crucial in developing human personalities, generating sustainable tourism, and improving a company's performance. On the contrary, the instances of Thailand and Malaysia call into question whether tourist operations can ever genuinely be entirely sustainable. Thailand and Malaysia have the most difficult situations, the former on the human side and the later on the environmental side. Indonesia's high score in the sustainability category shows that an increase in visitor numbers would not be detrimental to tourism sustainability (Cernat and Gourdon, 2007). A variety of particular steps may be taken to improve tourist sustainability. There are four types of environmental activities now in place: institutional capacity building, the formation of protected areas, investment in environmental projects (sanitation, water, and waste management), and private action control. The WTO also discusses in depth strategies for mitigating these effects. At the policy level, development plans that incorporate tourism and define tourist zones should identify rights of access to regions and examine what kind of activities are appropriate for the area. Subsidies, for example, might be used to encourage more sustainable practises and give cash to support environmental protection. Infrastructure development projects should employ low-impact building techniques, natural species for landscaping, and acceptable architectural styles. Recycling, trash minimization, and energy efficiency programmes should all be considered in infrastructure building (Cernat and Gourdon, 2007). When it comes to infrastructure, Indonesia appears to be trailing behind in terms of potential. In terms of hotel rooms, for example, the Sustainable Tourism Benchmarking Tool framework indicates a significant discrepancy between tourism activities and tourist numbers. Thailand must also increase its tourist service supply capabilities, particularly in terms of tourism infrastructure (Cernat and Gourdon, 2007). According to the metrics of the Sustainable Tourist Benchmarking Tool, Indonesia appears to have more suitable infrastructure to support tourism growth than Malaysia and Thailand.

3.2. Dubai’s sustainable tourism initiatives

The Dubai Commerce and Tourism Promotion Board (DCTPB) was created in 1989 to promote the destination to affluent tourists and business groups (Laws, 1995). Since then, economic modernisation and financial progress have accelerated population growth.

In 2007, the population of Dubai was expected to be approximately 1.53 million people (Statistical Centre of Dubai, 2007). Therefore, it began to be evident that both population management and tourism administration should opt for a more sustainable path regarding the use of resources. Dubai's growth spirit appears to be founded on a desire to be "larger," "better," and "bolder" than the rest of the world, with an underlying but implied objective of becoming a financial and tourism centre to match the rest of the Occidental World. The city itself has a sci-fi fantasy feel to it and has produced a number of local companies (Stephenson and Ali-Knight, 2010). The advancements in Dubai represent a new set of realities in the realm of modern tourist societies. It is possible to describe Dubai as a "hyperreal" location. Unlike other Gulf nations, Dubai is unquestionably in the forefront of the creation of an iconographic destination (Steiner, 2009). In addition, the Dubai tourist sector has acknowledged the necessity of supporting a socio-cultural and ecological approach to the development of sustainable tourism, implementing medium-term structural adjustments, and offering creative initiatives during the previous decade. Similarly, to meet the rising demand for ecotourism, Dubai provides wildlife viewing excursions. According to research commissioned by the Center for Sustainability via Research and Education for Expo 2020 Dubai, ecotourism is becoming more significant to tourists to Dubai, with 44% viewing sustainability as a "essential idea that impacts their behavior." According to the same study, 22% of tourists classified as responsible and sustainability-conscious travelers who utilize public transportation, drink water wisely, and are prepared to pay more for green-certified items and services (Lootah, 2022). Dubai, like much of the United Arab Emirates, offers a plethora of experiences where tourists may connect with local traditions, participate in cultural exchanges, and send a message to tourists that they are in a sustainable destination. The Al Marmoom Desert Conservation Reserve, for example, covers 10% of Dubai's total land area and is the biggest unfenced natural reserve in the UAE. It provides a haven for over 200 local bird species, 158 migratory bird species, and endangered species (Lootah, 2022). The area is ideal for horseback riders and bikers who want to explore the enormous expanse of desert, marshes, and lakes. Dubai is devoted to encouraging ecotourism and environmental conservation, not only because of its rapid population and economic expansion, but also because of the effect that sustainable locations have on visitor decisions (Lootah, 2022). And, as the UAE prepares to host the Cop28 climate summit, experts believe responsible tourism practises may help the country fulfil its sustainability goals. According to the Center for Sustainability Trough Research and Education (CSRE, 2020), the majority of tourists to Dubai have a good awareness of what sustainability is, with the majority (44.3%) viewing it as a concept that impacts their behaviour and makes their lifestyles more sustainable. When it comes to concepts connected to sustainability, travellers to Dubai are well-versed in this vocabulary. They are most familiar with the words global warming and renewable energy, with 83 and 76%, respectively. At the same time, tourists to Dubai comprehend other phrases connected to sustainability (63-70%), such as biodegradable, hybrid car, recycling, and carbon footprint, closely followed by biodiversity (CSRE, 2020). A single self-reported survey found that more over half of Dubai tourists view themselves as responsible and environmentally concerned travellers, with another 40% saying they occasionally perceive themselves as responsible travellers. Visitors to Dubai, on the other hand, exhibit average concern, attention, and conduct toward sustainable tourism practises when assessed using behavioural and lifestyle methodologies (CSRE, 2020). As a result, it is feasible to conclude that tourists to Dubai are experience-oriented and, given the option, choose to travel in a more sustainable manner. In addition, the research found that tourists to Dubai are prepared to spend extra for responsible travel. The majority of Dubai tourists (50-60%) would pay at least 5% extra for responsible travel alternatives, with more than a third willing to spend 20% or more. Furthermore, they are more likely to pay extra if they know that the money will be used to preserve the local natural environment, reverse the negative effects of tourism (more than 60%), and provide excellent salaries and working conditions for employees at the destination (CSRE, 2020). In this way, the relevant organisations have succeeded in segmenting the Dubai tourist industry with a sustainability attitude based on a cross-analysis of multiple variables, including the respondents' sustainable habits, behaviours, and practises, their levels of awareness of sustainability, the meaning they give to sustainability, and, finally, their self-assessment of whether they are responsible travelers. Structure-level procedures and measures have also been established. The Dubai Department of Tourism and Commerce Marketing (DTCM, 2021) has asked all hotels in the emirate to adhere to the new sustainability standards developed by Dubai Sustainable Tourism in 2021. This has been encouraged in order to continue progressing in the objective of boosting the positioning of this city as one of the world's most important sustainable tourism destinations. Sustainable management approaches, performance metrics, energy, food, and water management plans, education, employee training initiatives, the presence of sustainability committees in hotel establishments, and Corporate Social Responsibility programmes are among the 19 Sustainability Requirements for local communities. The hotels will boost the competitiveness of Dubai's tourism-related economy by improving their internal sustainability operations. These objectives are outlined in the 2021 Carbon Reduction Strategy, which aims to reduce carbon emissions by 16% by the end of the year (CSRE, 2020). According to the regulation, the hotels must also restart the monthly release of the report on their carbon emissions, which is one of the emirate's most exemplary environmental projects.

3.3. Marriott and Hilton’s sustainable practices

It is apparent that not only states are committed to developing sustainable tourism, but that businesses, particularly those in the hotel industry, must also be present to achieve these goals. The hotel corporations Marriott and Hilton are excellent examples of sustainable operations in recent decades. Marriott International, Inc. originated in the United States (U.S.) in 1927, when J. Willard Marriott and his wife founded a tiny root beer shop in Washington, DC, eventually renamed the Hot Shoppe. Recently, the firm has been operating and franchising hotels under 18 different brands, including Marriott Hotels & Resorts, The Ritz-Carlton, JW Marriott, Bulgari, EDITION, Renaissance, Gaylord Hotels, and others. As the brand has grown, so have its sustainable policies. In 2007, the company developed the Marriott Environmental Public Policy Statement, and in its sustainability reports for the years 2009 to 2012, Marriott cited achievements in the areas of immigration and integration, diversity and global inclusion, ethics and human rights, alleviation of poverty, disaster relief efforts, children's vitality, environment (energy, water, waste, carbon), green buildings, supply chain, education and inspiration of associates and guests, and projects 'Spirit to Preserve' - Juma Reserve and Nobility of Nature (Marriott International, Inc., 2009; 2010; 2012). In 2009 alone, the company celebrated the 10th anniversary of the Women's Leadership Development Initiative, the 20th anniversary of its formal programmes to promote diversity and inclusion, decided to expand its portfolio of LEED-certified building structures to include more than 85 hotels and its world headquarters (Matthews, 2011), and received the World Travel & Tourism Council (WTTC'Tourism)'s for Tomorrow for Sustainability' award (Marriott International, Inc., 2009). Was named one of the world's greatest firms for working women in 2012 (Working Mother, 2012), and it ranked as the top big hotel chain in terms of sustainable business practises for three years in a row. years (Climate Counts, 2012), and received the World at Work's Alliance for Work-Life Progress's (AWLP) 2013 Work-Life Seal of Distinction (Marriott News Center, 2013b). Furthermore, FORTUNE magazine has frequently named it one of the Best Companies to Work For, and Newsweek magazine has named it one of America's Most Environmentally Friendly Large Companies (Marriott News Center, 2013a). Recently, the area vice president of Marriott International in Singapore, Malaysia, and the Maldives stated that sustainable tourism presents an opportunity to capitalise on growth opportunities, particularly as tourists become more environmentally conscious and seek more eco - friendly alternatives, because guests are looking for eco-friendly options, such as room designs and furniture, high-efficiency lighting, fixtures that communicate with water, environmentally preferred products, and so on (Singapore Tourism Board, 2021) demonstrating the organizational commitment to respectful practices with the environment. With these customer needs in mind, Marriott International has launched a comprehensive sustainability and social impact project to equip its hotels with resources-saving products, services, and processes. The project, dubbed "Serve 360: Doing Good in Every Direction," was established in 2017 and will lead the company's sustainability activities until 2025. (Singapore Tourism Board, 2021). Established objectives take the shape of explicit and quantifiable accomplishments. This effort aims to reduce water and carbon intensity by 15% and 30%, respectively, reduce landfill waste by 45 percent, reduce food waste by 50%, and reach at least 30% renewable power consumption. By 2025, Marriott hopes to have ethically sourced 95 percent of its daily consumables, including animal protein, bottled water, cleaning materials, cocoa, coffee, guest items, paper products, seafood, sugar, and textiles (Singapore Tourism Board, 2021). The success story and sustainable initiatives of the Hilton chain are also interesting. Hilton Worldwide is covered by over ten brands with over 3,600 properties in 81 countries. The company is dedicated to decreasing resource use while increasing the client experience and fostering staff loyalty. In 2008, CEO Christopher Nassetta stated the chain's global objective of lowering landfill trash, energy usage, CO2 emissions, and water use by 20% by 2014. as part of Hilton Worldwide's Global Sustainability Initiative, compared to 2008. (Bohdanowicz et al., 2011). The corporation is adamant that managing businesses responsibly will result in financial savings, new revenue streams, marketing and public relations coverage, and better preparing firms for future government laws. Between 2006 and 2008, Hilton hotels in continental Europe participated in the regional environmental initiative (we care!) The fundamental goal of the European programme was to empower team members to effect change both at work and at home. Through target formulation and performance evaluation, it focused on four main environmental issues: energy efficiency, waste reduction, water efficiency, and chemical usage (Bohdanowicz et al., 2011). The key goal was to create a culture shift that would allow team members to enhance the ecological performance of the hotels: a 15% decrease in normalised energy consumption and a 10% reduction in normalised water consumption was projected over the first three years compared to 2005. The entire programme was built on five pillars: (1) a senior management-endorsed environmental policy; (2) International Tourism Association (ITP) guidelines for the location, design, and construction of sustainable hotels; (3) "ecoLearning" via the intranet and company workshops; (4) Hilton Environmental Reporting; and (5) HiWay (intranet) as a communication tool (Bohdanowicz, 2007). The data obtained in HER was then utilised to create performance indicators for individual hotels and compare their performance to the national average and to Hilton's European portfolio. Since 2005, each hotel has had access to the following indicators: energy in kWh per guest night, energy in kWh per square metre of constructed space, water in litres per guest night, kilos of unsorted garbage per visitor night, and kilogrammes of laundry per guest night (Bohdanowicz et al., 2011). Because defining efficiency/reduction goals necessitates performance assessment tools, Hilton Environmental Reporting (HER) was created in 2004 to measure environmental performance (Bohdanowicz, 2007). It was a computerised system that allowed Hilton hotels in Europe to report on their monthly resource consumption (electricity, water) as well as operational characteristics such as guest nights and meal toppers sold (however, in 2010, HER was replaced by Light Stay a global sustainability tool used by all Hilton Worldwide brands, Hotel Online, 2010). More recent efforts and accomplishments may be seen in the chain's Corporate Responsibility Report (2018), which celebrated its 100th anniversary with the theme "Travel with Purpose."

Travel with Purpose is the hotel chain's current expression of corporate responsibility in support of world change. It is committed to paving the way for locations where people live, work, and travel to remain dynamic and resilient for future generations. As a result, Hilton claims to be the first large hotel corporation to set science-based objectives for reducing carbon emissions in accordance with the Paris Climate Agreement and to pledge to sending no hotel soap to landfill. They have also increased their commitment in inclusive growth for everyone through initiatives, allowing our communities to capture the full economic advantages of travel and tourism (Corporate Responsibility Report, 2018). All of this is consistent with our pledge to promote the United Nations 2030 Agenda for Sustainable Development. Hilton 2030 Travel with Purpose Goals were launched, with the goal of doubling social impact investment and cutting our environmental footprint in half by 2030. Targets Initiative debuted as the first large hotel corporation to set science-based authorised carbon reduction objectives (Corporate Responsibility Report, 2018). It also pledged a $1 million USD first commitment to encourage sustainable tourism in Africa, as well as becoming the first hotel operator to promise to sending no soap to landfill. This might be one of the most exciting initiatives in the chain. More than 2.4 million pounds of soap and plastic bottles have been diverted from landfills thanks to Zero Soap to Landfill. They have delivered over 9.6 million bars of soap in 127 countries and constructed over 1.2 million hygiene kits for underserved people (Corporate Responsibility Report, 2018). As a result, they have been able to contribute to a 35% decrease in the death rate of children under the age of five who die from hygiene-related illnesses. The brand standard was developed as a result of Hilton attempts to eradicate plastic straws, stir sticks, and cocktail sticks from all hotel operations, including franchisees (Corporate Responsibility Report, 2018). As they have done in support of the UN Water Action Platform, they also have joined The Climate Group's Energy Productivity effort.

4. DISCUSSION

Tourism will expand, sometimes fast, because only roughly one-tenth of the world's population now travels worldwide. Then, the primary responsibility is to control expansion in a way that is suitable for visitors, the destination environment, and the host people. Second, there is a pressing need to design policies and practises that are both theoretically sound and practically viable. Without effective ways of converting aspirations into reality, sustainable tourism risks becoming outdated and ineffective as a viable policy alternative for real-world tourist growth. (Font & Sallows, 2002). Evidence has shown the attention that nations and industries pay to keep up with the sustainability goals of the century. Cases were analyzed such as those of the tourism industry in Indonesia, Thailand and Malaysia, whose governments focus on promoting cultural events and the native ecological idiosyncrasies of their peoples. The Indonesian government promotes tourism villages in order to progress villages and revenue sharing, for example. The instances of Thailand and Malaysia call into question whether tourist activities can ever genuinely be entirely sustainable. Thailand and Malaysia have the most challenging situations, the former on the human aspect and the later on the environmental side. Subsidies, for example, could be used to encourage more sustainable practises and provide financial assistance to environmental conservation. Low-impact building techniques, natural species for landscaping, and appropriate architectural styles should be used in infrastructure development projects. Recycling, garbage reduction, and energy efficiency measures should all be addressed while constructing infrastructure (Cernat and Gourdon, 2007). On the other hand, Dubai's developments constitute a new set of realities in the arena of modern tourist societies. Dubai may be described as a "hyper - realistic" place. Unlike other Gulf countries, Dubai is definitely at the forefront of the development of an iconic destination (Steiner, 2009). Furthermore, throughout the preceding decade, the Dubai tourism sector recognised the need of supporting a socio-cultural and ecological approach to the growth of sustainable tourism by adopting medium-term structural changes and delivering creative initiatives. Finally, it is hard to overlook the numerous instances of corporate responsibility in the hotel business, such as Marriott and Hilton. Because guests are looking for eco-friendly options, such as room designs and decor, high-efficiency illumination, fixtures that communicate with water, environmentally preferred products, and so on, these chains, respectively, confirmed sustainable tourism presents an opportunity to capitalise on growth opportunities. Similarly, the Hilton chain claims to be the first big hotel firm to establish science-based targets for lowering carbon emissions in compliance with the Paris Climate Agreement, as well as to commit to not disposing of hotel soap in landfills. They have also expanded their commitment to inclusive growth for everyone through programmes that will allow our communities to reap the full economic benefits of travel and tourism.

5. CONCLUSIONS

The use of sustainability principles is the greatest strategy to protect tourism sites from social, cultural, and environmental damage. Tourism, when organised properly, may also enhance revenue and be a source of prosperity for the local community. Because tour operators may draw financing from banks and investors, tourism may be viewed as an easy method to get finance. Sustainable activities can assist minimise operational expenses by lowering waste creation and water and energy use. The evidence analyzed has shown that the coexistence of profitable tourism with sustainable practices is possible. Among the examples of success stories, it is possible to mention the ecotourism initiatives of Dubai, a city that increasingly gives more importance to the reduction of waste and to infrastructures promoted by sustainable energies. Likewise, cases of the effectiveness of corporate responsibility policies such as the Marriott and Hilton hotel chains offer a positive outlook regarding the balance of a profitable, but sustainable and responsible hotel industry with the environment and society.

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PERFORMANCE ANALYZES OF CROATIAN OPEN-ENDED INVESTMENT FUNDS WITH PUBLIC OFFERING (UCITS FUNDS)

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ABSTRACT

The subject of this paper is to analyze the performance of Open-Ended Investment Funds with Public Offering (UCITS funds) in the Republic of Croatia from 2014 to 2021 based on monthly returns. UCITS funds were chosen because they represent the dominant type of investment funds in net asset value (NAV). The popularity of this type of investor is reflected in the channeling of the savings of small investors to the capital market through the securitization mechanism. The advantage of investing by small investors through investment funds, especially UCITS funds, is manifested in the reduction of transaction costs based on economies of scale and investment risk by holding a well-diversified portfolio. The research was conducted on a balanced sample of a total of 32 funds that were analyzed as a whole but also separately according to the individual type to which they belong and which operated continuously in the observed period from January 1, 2014. until December 31, 2021 (equity fund- 15, bond fund- 11 and balanced fund - 6). The effect of their portfolio management, and consequently the analysis of business success, were analyzed with static indicators, primarily Absolute risk measures and with the Absolute risk-adjusted measures, Jensen's alpha, Sharper ratio and Sortino ratio.

Keywords: *Investment Funds, Risk, Jensen's alpha, Sharper ratio, Sortino ratio*

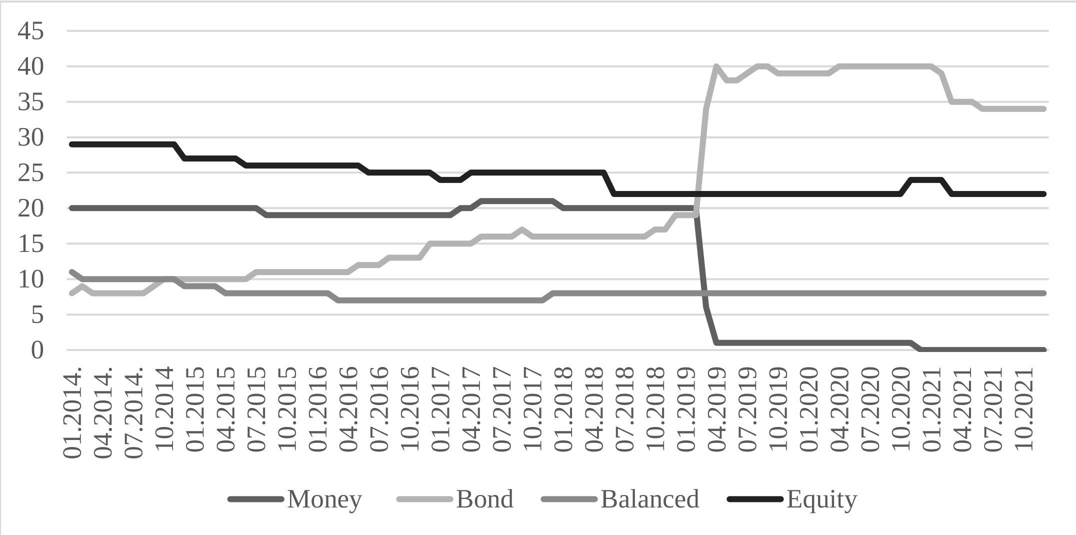
1. INTRODUCTION

Investment funds are one of the forms of joint investment that operate in such a way that they obtain funds from the general public, usually individual investors, and then invest these funds in different types of assets, i.e., long-term and sometimes short-term investments (ERSTE, no data). This way of investing through funds enables a well-diversified portfolio that affects the stabilization of income and eliminates risks that are not closely related to movements in the financial market (Orsag, 2015, p. 124). Also, funds offer individual investors the possibility of expanding their financial portfolio, protection against investment risks, reduction of transaction costs, responsible professional management and liquidity (Leko, 2012, p. 92). Ultimately, an investment fund represents a portfolio composed of one or more types of assets, regulated explicitly by the fund's statute and prospectus. It is for this reason that the four most common types of investment funds are distinguished, namely equity funds that invest primarily in stocks, bond funds that invest in bonds, hybrid funds that invest in bonds and stocks, and money funds that invest primarily in securities and money market instruments in a period shorter than one year, and for this reason, they belong to the group of short-term funds (Amon et al., 2002, p. 221). There are numerous forms of investment in the Republic of Croatia, and one of the more attractive and increasingly popular ways of investing is investing in open investment funds. Such investments have their characteristics according to the type of open-end investment funds in which one wants to invest and are therefore open to all potential investors by their ambitions, risk appetite, expected returns, amount of available funds and the like. Although investment funds have a long tradition of existence, both in the world and in the Republic of Croatia, they began to gain popularity in the last few years. Due to the increasing representation of investment funds, great importance is given to the business of open-end investment fund management companies through strict regulation regulations and laws, which have changed over the years in accordance with changes in the market. The investment fund's net asset value indicates the dominant position of the UCITs fund compared to AIF funds, and based on that, UCITS funds were included in the analysis. According to official data taken from official annual reports of the Croatian Agency for supervision of financial services (cro. HANFA), at the end of the December of 2021 in Croatia, there were 127 investment funds registered, of which 93 were UCITS funds and 34 AIF funds. This is not surprising considering even the legal definition and characteristics of the funds, wherein the UCITS funds are designed for a wide range of investors, and the AIF funds are appropriated mainly to the investors with more experience and knowledge in the field of investment (i.e., Professional and qualified investors) (cro. HANFA, 2017). The crucial factor in the movement of the net asset value of open investment funds with public offering is the perception of the investors and their confidence in the performance and operation of the analyzed funds (Klačmer Čalopa, Đunđek Kokotec, 2017). For this work, only money, bond, stock and mixed funds were taken into account, while the feeder and other funds were omitted due to the unavailability of the necessary data based on which the analysis of their performance would be carried out.

2. ANALYSIS OF THE UCITS FUNDS IN CROATIA

In 2013, the establishment and start of operation of UCITS funds and AIF, whose operation is regulated by a law that entered into force in 2013, enabling a more precise regulation of the operations of the investment fund management company, as well as the investment funds themselves in the Republic of Croatia (HANFA, annual report 2014, p. 48). Based on the data collected from HANFA's website, it can be concluded that the number of investment funds varied. From 2014 to 2019, no significant changes in the number of investment funds were visible, but after 2019, there was a change in the number of investment funds, with a significant increase in bond funds with a simultaneous decrease in money funds. The main reason for this is the entry into force of the regulation on money funds, whereby money funds had to harmonize their form with the investment strategy, so most money funds were registered as short-term bond funds. With the regulation's entry into force, the funds were obliged to harmonize their form with the investment strategy, so most money funds were registered as short-term bond funds, which ultimately led to an increase in the number of bond funds and a decrease in money funds. Precisely for a reason mentioned earlier, at the end of 2019, there were only two money funds in the Republic of Croatia, which is 19 funds less than the previous year (HANFA, annual report 2019, p. 20). At the end of 2020, 96 open investment funds with a public offer (UCITS) were active in the Republic of Croatia, but the entire year 2020 was a year of changes, both in the world and on the capital market in the Republic of Croatia. During the emergence of the COVID-19 virus and the crisis that occurred as a result of it, several changes occurred, and at the very beginning, there was a situation in which investors bought shares, which had a negative impact on the financial market, as well as on the decline in the value of the fund's assets. The Stability Fund is established to purchase bonds and other market instruments to ensure liquidity.

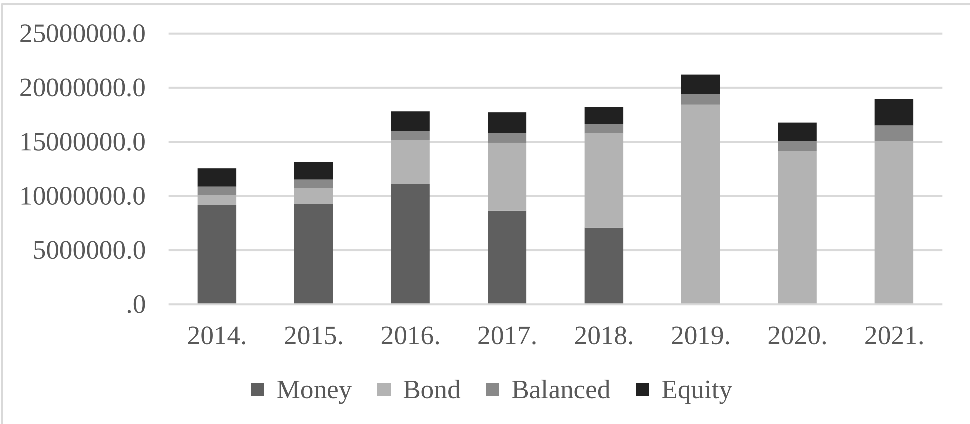
After a period of slowing down of share buybacks, there is an increase in new payments, the return of a minor part of investors and the establishment of new UCITS funds, so at the end of 2020, there were 96 UCITS funds (HANFA, annual report 2020, p. 20). In 2021, a total of 93 open investment funds with a public offer (UCITS) were active, whereby a significant position was occupied by equity funds, which at the same time achieved the highest annual returns compared to other types of investment funds (HANFA, monthly report for December 2021) Graph 1 shows the trend in the number of UCITS funds in the Republic of Croatia in the period from 2014 to 2021.



Graph 1: Number of UCITS funds in the Republic of Croatia in the period from 2014. to 2021.
(Source: Compiled by authors according to HANFA, B-1, 2022)

2.1. Net asset value of the UCITS funds

Observing the net assets of UCITS funds, it is evident that the funds' net assets varied during the observed years of operation on the financial market of the Republic of Croatia. The change in the net assets of open-end investment funds was influenced by numerous factors, such as the attitude and trust of investors in the system of business and functioning of investment funds, the movement of fund yields and investment security, the structure of fund investments and others. Graph 2 shows the movement of net assets of UCITS funds in the period from 2014 to 2021.



Graph 2: Net asset value of UCITS funds in the period from 2014. to 2021.
(Source: Compiled by authors according to HANFA, B-10, 2022)

At the end of 2021, there were 93 open investment funds with a public offer operating on the domestic market, which managed net assets worth HRK 21.5 billion, representing an increase of 18.1% annually. This almost reached the pre-pandemic level of net assets under the management of UCITS funds at the end of 2019. The largest increase in net assets of 0.9 billion. HRK (6.4%) on an annual level was achieved by the most significant bond, UCITS funds. At the same time, the net assets of equity funds grew by 0.8 billion. kuna (46.0%), other funds for 0.8 billion. HRK (60.5%) mixed funds by HRK 0.5 billion (53.0%), while the smallest increase in net assets of HRK 0.4 billion (276.8%) was recorded by feeder funds. Partly the result of favorable developments in the markets, but also the return of investor confidence, which was reflected in a positive net inflow of investor funds of HRK 3.0 billion into UCITS funds during 2021, which partially compensated for significant outflows of funds from the previous year. In addition to the previously mentioned factors that can have an impact on the value of net assets, it is also worth mentioning the economic development of the country, which is measured by GDP, and which, as such, also has an impact on the increase or decrease in the value of the net assets of the funds. Table 1 shows a positive relationship between the net asset value of UCITS funds and the GDP of the Republic of Croatia, i.e., with the growth of the country's GDP, UCITS funds also record an increase in the net asset value in the period from 2014 to 2021. The share of net assets in GDP was the most significant in 2019, when it was 5.48%, while in 2021, the last year of observation, it was 4.98%, which is an increase of 1.1 percentage points compared to 2014. (DZS, 2022). On the other hand, according to the research of Perčević and Mićin (2017), the conclusion is reached that the correlation coefficient is weak to moderate and that equal growth/decrease values are not recorded during the observed years, and for this reason, there is no strong positive statistical connection between observed variables.

	2014.	2015.	2016.	2017.	2018.	2019.	2020.	2021.
NAV UCITS	13,0	13,9	18,4	18,5	19,1	22,6	18,2	21,5
GDP	335,3	334	335,9	372,4	390,9	412,2	378,3	431,5
Share of GDP	3,88%	4,16%	5,48%	4,97%	4,89%	5,48%	4,81%	4,98%

Table 1: Net assets of UCITS funds, GDP (in HRK billion) and share of GDP in the Republic of Croatia in the period from 2014 to 2021
(Source: Compiled by authors according to HANFA, B-10 Net assets of UCITS funds, 2022; CBS, Gross domestic product – annual calculation, 2022)

2.2. Investment structure of UCITS funds

Table 2 shows the investment structure of UCITS funds in the Republic of Croatia from 2014 to 2021 in thousands of HRK with the balance as of December 31. At the end of 2021, the assets of UCITS funds were mainly invested in bonds (56.2%), followed by cash (15.1%), shares (11.8%), investment funds (7.4%) and deposits (7.1 %). The table shows that the most important item is securities and deposits because the funds invest the most in them. Then they are followed by funds, which are significant because they enable the funds to meet all their obligations and buy back shares. After cash, there are receivables and other assets that make up a slightly smaller part of the investment structure of UCITS funds. It is visible that the funds invest more in domestic securities and deposits and less in foreign ones. However, there is an evident increase in investment in foreign securities and deposits, mostly in government bonds, shares in other UCITS and ope-end investment funds with public offerings, money market instruments, and instruments Under the influence of the environment of low-interest rates and still low yields on debt securities, investments in bonds and deposits decreased by 6.0 p.b. or 1.9 p.b. compared to the previous year. In comparison, investments in investment funds (by 3.2 p.b.), shares (2.6 p.b.) and money market instruments (1.6 p.b.) increased.

Accordingly, in 2021, the multi-year growth trend of foreign investments in almost all categories of UCITS funds continued. Thus, at the end of 2021, the most significant representation of foreign assets was held by equity funds (64.3% of total assets with annual growth of 2.6 p.b.), followed by other funds (58.8% of total assets and a growth of 8.6 p.b.) and mixed funds (57.5% of total assets and growth of 8.8 p.b.). By diversifying the portfolio of UCITS funds through the growth of foreign investments, their exposure to concentration risk and liquidity risk is reduced, but with a certain increase in exposure to disruptions in foreign markets (primarily stock markets). Almost all categories of UCITS funds closed 2021 with positive returns, reflecting positive valuations on financial markets in an environment of stabilization of systemic stress and still favorable financing conditions. The average annual return for equity funds was 20.2%, for mixed funds 7.1%, and for others, 3.8%. Under the influence of the expected increase in interest rates due to inflation and the consequent decline in the value of debt securities, bond UCITS funds recorded negative returns, so in 2021 an average return of -1.1% was achieved, and suppressed results are inevitable in the coming period as well.

Type of assets	2014.	2015.	2016.	2017.	2018.	2019.	2020.	2021.
Cash	**952.285**	**1.008.191**	**2.410.810**	**2.324.541**	**2.844.618**	**2.771.366**	**2.748.499**	**3.298.649**
Receivables	**131.009**	**140.314**	**326.203**	**491.859**	**72.992**	**44.652**	**14.460**	**10.025**
Securities and deposits	**12.174.327**	**12.942.475**	**17.158.828**	**16.422.570**	**17.252.608**	**20.651.599**	**16.095.443**	**18.555.470**
Domestic	10.675.492	11.443.852	15.580.920	13.841.039	14.426.981	15.299.820	10.243.225	11.037.959
Foreign	1.498.835	1.498.623	1.577.908	2.581.531	2.825.627	5.351.779	5.852.218	7.517.512
Other assets	**5.020**	**7.560**	**12.200**	**15.851**	**19.558**	**20.874**	**17.778**	**43.042**
TOTAL ASSETS	**13.262.641**	**14.098.540**	**19.908.041**	**19.254.821**	**20.189.777**	**23.488.490**	**18.876.181**	**21.907.187**

Table 2: Investment structure of UCITS funds in thousands of HRK
(Source: Compiled by authors according to HANFA, 2022)

3. RESEARCH METHODOLOGY

The analysis of business performance was carried out on a sample of 32 UCITS funds, which together represent 88% of the total net asset value of UCITS funds, whereby 15 of them belong to the group of equity funds, 11 to the group of bond funds and 6 to the group of mixed funds. Accordingly, the intentional sample defined by the authors includes equity funds Allianz Equity, A1, Capital Breeder, Erste Adriatic Equity, Eurizon HR Equity, Generali Nova Europa, Generali Victoria, HPB Dionički, InterCapital See Equity, OTP index, OTP Meridian 20, ZB active, ZB BRIC+, ZB euroaktiv, ZB trend, then bond funds Allianz Short Term Bond, Erste Adriatic Bond, Eurizon HR Bond, HPB Bond, InterCapital Bond, OTP e-start fund, OTP start fund, Raiffeisen Flexi Euro short-term bond, ZB bond, ZB eplus, ZB plus and mixed funds Allianz Portfolio, Eurizon HR Global, Generali Balanced, HPB Global, OTP balanced and ZB global. In order to obtain a balanced sample, only those funds that operated continuously in the observed period from January 1, 2014, to December 31, 2021, were selected for the sample. The analysis of business success was carried out based on monthly returns of UCITS funds collected from monthly reports for the observed period from 2014 to 2021, which are available on the website of the Croatian Financial Services Supervisory Agency (HANFA) and were analyzed using descriptive statistics conducted in software package Excel. In order to test the normality of the distribution of monthly returns, the coefficients of asymmetry and roundness were analyzed as part of this statistical analysis. In addition, standard deviation and its modified measure called Downside deviation, which includes the concept of minimum acceptable return (MAR), were used for risk analysis. The MAR for this analysis was determined so that a different MAR was determined for each group of funds, following the riskiness of a particular group of funds. Thus, according to Pangestuti, Wahyudi, and Robiyanto (2017), a MAR of 2.80% was determined for the group of equity funds, equal to the risk-free interest rate (NKS). Furthermore, a MAR of 0% was determined for the group of bond funds, which indicates a situation in which any positive return would exceed the defined MAR of 0% (Markovic-Hribernik, Kuzner, 2013). Moreover, the last group is mixed funds, where the MAR was determined by the authors of this paper and is 0.70%. Accordingly, the formula of the mentioned measure according to Taleska, Bogdanovski (2015) reads:

$$Downside\ deviation = \frac{\Sigma_{i=1}^{n}(\min(Ri - MAR, 0))}{N} \qquad (1)$$

In order to conduct a comparative analysis of the performance of UCITS funds, measures adapted to absolute risk were also used, namely the Sharpe ratio, Sortino ratio and Jensen's alpha. The Sharpe ratio, which represents one of the most well-known measures in risk analysis, is obtained by comparing the difference between the average return value, the risk-free interest rate, and the standard deviation. For this paper, the risk-free interest rate is 2.80%, obtained using the yield method on Croatian government bonds with a ten-year maturity (HAKOM, 2019). So, according to Taleska and Bogdanovski (2015), the formula of this indicator reads:

$$Sharpe\ ratio = \frac{mean - risk\ free\ rate}{standard\ deviation} \qquad (2)$$

In addition to the Sharpe ratio as mentioned above, this analysis also used the Sortino ratio, which represents an extension of the Sharpe ratio, and which measures returns adjusted to the target rate of return and downside risk (Barjaktarović, Ječmenica, Paunović, 2013), that is, this indicator is obtained in a way that the difference between the average value of the fund's yield and MAR and Downside deviation is put into relation. Accordingly, the formula of this indicator, according to Taleska and Bogdanovski (2015), reads:

$$Sortino\ ratio = \frac{mean - MAR}{downside\ deviation} \qquad (3)$$

The last indicator used within this paper is Jensen's alpha. This indicator indicates how successfully a particular fund earns concerning the market, i.e., Jensen's alpha measures the ability to achieve returns above those that represent compensation for assuming market risk (Barjaktarović, 2013). In order to calculate this indicator as part of this thesis, the average returns of funds (ri), monthly risk-free interest rate (rf=0.233), beta coefficient (β) and expected market return (rm) were taken into account. For stock funds, the average market return of the Crobex stock index was taken into account, while for bond and mixed funds, the average market return of the Crobis bond index was taken into account. Therefore, the formula of this indicator, according to Barjaktarović (2013), read:

$$Jensen's\ alpha = ri - [rf + \beta(rm - rf)] \qquad (4)$$

where ri - realized investment return, rf - risk-free interest rate, β - beta coefficient, rm - expected market return.

4. RESEARCH RESULTS

Table 3 shows the summary statistics of the analyzed UCITS funds from January 2014 to December 2021. Standard deviation, as one of the measures of dispersion, represents the absolute average deviation from the average (Horvat, Mioč, 2018). According to Taleski, and Bogdanovski (2015), a high standard deviation as one of the measures of descriptive statistics indicates that the fund is volatile, not risky or prone to losses, while on the other hand, a low standard deviation indicates that the fund tends to achieve similar returns during periods.

Fund		Mean	Median	Mode	Std. Dev.	Kurtosis	Skewness
Equity funds	Allianz Equity	0,66	0,63	0,64	3,02	11,03	-2,03
	A1	0,34	0,23	0,75	4,09	5,30	-0,66
	Capital Breeder	1,09	0,91	4,09	3,64	9,49	-0,66
	Erste Adriatic Equity	0,31	0,46	#N/A	3,41	4,81	-0,86
	Eurizon HR Equity	0,58	0,54	0,48	3,13	13,28	-2,38
	Generali Nova Europa	0,23	0,33	-3,21	4,88	2,40	-0,58
	Generali Victoria	0,49	0,78	-0,86	3,41	7,82	-1,43
	HPB Dionički	0,59	0,88	0,79	2,85	6,97	-1,19
	Intercapital SEE Equity	0,91	0,91	-0,10	3,47	11,95	-1,78
	OTP indeksni	0,44	0,77	-0,80	3,66	9,53	-1,90
	OTP Meridian 20	0,37	0,53	0,73	2,78	7,78	-1,55
	ZB aktiv	0,39	0,62	1,87	3,36	13,15	-2,28
	ZB BRIC+	0,38	0,83	2,93	4,70	0,11	-0,45
	ZB euroaktiv	0,43	0,63	-1,00	3,66	0,30	-0,37
	ZB trend	0,67	1,07	-0,30	3,84	0,43	-0,45
Bond funds	Allianz Short Term Bond	0,03	0,02	0,01	0,05	13,53	-1,53
	Erste Adriatic Bond	0,21	0,21	#N/A	1,06	14,27	-1,84
	Eurizon HR Bond	0,25	0,24	0,50	0,78	15,91	-2,59
	HPB Obveznički	0,23	0,27	0,36	0,85	14,99	-2,35
	Intercapital Bond	0,27	0,35	0,47	0,90	14,67	-2,49
	OTP e-start	0,00	0,00	0,00	0,10	11,24	-0,86
	OTP start	0,02	0,01	0,01	0,05	2,38	0,59
	Raiffeisen Flexi Euro	0,00	0,03	-0,01	0,40	2,09	-0,32
	ZB Bond	0,23	0,28	0,50	0,83	11,24	-2,00
	ZB eplus	0,02	0,02	0,00	0,04	17,84	-2,26
	ZB plus	0,02	0,02	0,00	0,03	19,24	-2,98
Balanced funds	Allianz Portfolio	0,50	0,46	1,10	1,57	10,42	-1,26
	Eurizon HR Global	0,52	0,58	1,81	1,98	2,04	-0,72
	Generali Balanced	0,40	0,36	0,04	2,48	8,47	-1,39
	HPB Global	0,60	0,77	1,91	2,03	12,37	-2,14
	OTP uravnoteženi	0,14	-0,02	0,34	1,82	0,07	0,48
	ZB global	0,36	0,53	0,91	1,95	3,61	-1,04

Table 3: Summary statistics of UCITS funds
(Source: Author's calculations, an extract from software package Excel)

Based on the analysis of equity funds, it can be concluded that the standard deviation and mean value of equity funds are significantly different, i.e., that the standard deviation is greater than the mean value of the funds, which indicates that the returns of the funds on average deviate from the mean value by the calculated standard deviation, which is the expected result in accordance with the high risk of equity funds. On the other hand, looking at the standard deviation of bond funds, it can be seen that it is low, that is, almost negligible in most funds, which indicates that the mentioned funds tend to achieve equal returns over a certain period, which of course makes sense considering that it is a group of funds with low riskiness. Finally, looking at the standard deviation of mixed funds, it is concluded that it is slightly higher than the standard deviation of bond funds but lower than the standard deviation of equity funds, which shows that the mentioned funds are volatile but also tend to achieve similar returns during the period. Then, looking at the coefficient of asymmetry, it is negative for the majority of analysis funds of all categories, which suggests that it is a negatively asymmetric distribution, given that the results obtained are negative, i.e., the asymmetry measures are less than zero, which therefore results in a distribution with an asymmetric tail that moves towards negative values. A positive asymmetry coefficient is evident only in the bond fund OTP start and the mixed fund OTP balance. Furthermore, from the point of view of the analysis, the roundness coefficient of the results indicates that in 11 out of a total of 15 analyzed equity funds, the coefficient is greater than 3, which indicates that the top of the distribution itself is sharper than the top of the normal distribution. It is a leptokurtic distribution with a greater number of extreme values with a thicker tail than the normal distribution. When it comes to bond funds, the coefficient of roundness is greater than 3 in 9 out of a total of 11 analyzed funds, and again it is a leptokurtic distribution with a greater number of extreme values, except for the funds OTP start and Raiffeisen Flexi Euro, whose coefficient of roundness is less than 3, and it is about the platykurtic distribution. Looking at the last group of funds, i.e., mixed funds, it can be seen that the coefficient of roundness is greater than 3 in 4 out of a total of 6 funds, which indicates a leptokurtic distribution with a higher probability of taking the value of the variable in the tails, as well as the possibility of a wrong assessment of expected future returns due to the uncertainty of future events.Table 4 shows the results that indicate the volatility of the yield of the analyzed UCITS funds.

Fund		Downside deviation	Sharpe ratio	Sortino ratio	Jensen's alpha
Equity funds	Allianz Equity	0,1115	0,1435	3,8991	0,7813
	A1	0,1310	0,0274	0,8574	0,4589
	Capital Breeder	0,1231	0,2351	6,9598	1,2037
	Erste Adriatic Equity	0,1190	0,0247	0,7087	0,4309
	Eurizon HR Equity	0,1136	0,1128	3,1151	0,7003
	Generali Nova Europa	0,1438	-0,0006	-0,0196	0,3438
	Generali Victoria	0,1189	0,0775	2,2259	0,6112
	HPB Dionički	0,1080	0,1275	3,3745	0,7111
	Intercapital SEE Equity	0,1200	0,1967	5,6922	1,0296
	OTP indeksni	0,1236	0,0586	1,7401	0,5616
	OTP Meridian 20	0,1066	0,0523	1,3684	0,4924
	ZB aktiv	0,1180	0,0486	1,3874	0,5102
	ZB BRIC+	0,1410	0,0319	1,0634	0,4965
	ZB euroaktiv	0,1235	0,0554	1,6430	0,5495
	ZB trend	0,1267	0,1153	3,4987	0,7898
Bond funds	Allianz Short Term Bond	0,0211	-3,7417	1,4899	-0,0858
	Erste Adriatic Bond	0,0939	-0,0168	2,2934	0,0982
	Eurizon HR Bond	0,0804	0,0225	3,1219	0,1337
	HPB Obveznički	0,0842	0,0047	2,8187	0,1201
	Intercapital Bond	0,0867	0,0447	3,1605	0,1567
	OTP e-start	0,0288	-2,2762	0,1737	-0,1122
	OTP start	0,0212	-3,8970	0,0204	-0,0968
	Raiffeisen Flexi Euro	0,0576	-0,5810	0,0024	-0,1171
	ZB Bond	0,0832	-0,0009	2,7950	0,1154
	ZB eplus	0,0198	-4,4197	1,1498	-0,0944
	ZB plus	0,0175	-5,7175	1,2952	-0,0946
Balanced funds	Allianz Portfolio	0,2055	0,1739	2,1873	0,5066
	Eurizon HR Global	0,2312	0,1460	2,0088	0,5215
	Generali Balanced	0,2594	0,0677	1,3219	0,4001
	HPB Global	0,2344	0,1828	2,3345	0,6045
	OTP uravnoteženi	0,2215	-0,0497	0,3809	0,1415

Table 4: Downside deviation, Sharpe Ratio, Sortino Ratio and Jensen's alpha for the UCITS funds
(Source: Author's calculations, an extract from software package Excel)

When analyzing equity funds, a MAR of 2.80% was used. It was equated to the risk-free interest rate, based on which it is concluded that if potential monthly losses occur, they should not exceed the previously calculated amount of Downside Deviation (11.15% for Allianz Equity, 13.10% for A1, 12.31% for Capital Breeder, 11.90% for Erste Adriatic Equity, 11.36% for Eurizon HR Equity, 14.38% for Generali Nova Europa, 11.89% for Generali Victoria, 10.80% for HPB Dionički, 12.00% for InterCapital SEE Equity, 12.36% for OTP index, 10.66% for OTP Meridian 20, 11.80% for ZB aktiv, 14.10% for ZB BRIC+, 12.35% for ZB euroactive and 12.67% for ZB trend). Accordingly, all values that differ from the above are not considered normal. Table 4 shows that 15 equity funds had a positive value of the Sortino ratio, except for the Generali Nova Europa fund (-0.0196). However, it can be concluded that only 6 out of 15 funds achieve returns higher than the initially assumed MAR, including Allianz Equity, Capital Breeder, Eurizon HR Equity, HPB Dionički, InterCapital SEE Equity and ZB Trend funds. Analyzing the Sharpe ratio, it is evident that most funds achieved a positive value of the Sharpe ratio, except for the Generali Nova Europa fund (-0.006). Such a result indicates that the majority of equity funds achieved a higher average return rate than risk-free investing, which may affect the increasing attractiveness of the mentioned group of funds to potential investors, as well as the satisfaction of current investors. To calculate the Sharpe ratio, a risk-free interest rate of 2.80% was used, which was determined using the yield method on Croatian government bonds with a ten-year maturity, and for calculation, a monthly risk-free interest rate of 0.233% was used. Observing Jensen's alpha measure, it is visible that all the analyzed equity funds achieved positive values of the mentioned indicator, which indicates that the funds achieved a satisfactory return concerning the assumed risk of their investments, i.e., all equity funds managed to achieve a higher return than the expected rate of return according to the CAPM model. Based on the calculated indicators, it is concluded that the group of equity funds is the group of funds that could be the most attractive to potential investors given the analysis results, but with sufficient attention given the riskiness of the group of funds itself. Furthermore, looking at bond funds, it is evident that a MAR of 0% was used for calculation, which indicates that any positive return would exceed the previously defined MAR of 0%. Table 4 shows how all funds achieved a positive value of the Sortino ratio, i.e., higher returns than the previously defined MAR. Analyzing the Sharpe ratio, it is concluded that 8 out of 11 analyzed funds achieved a negative value of the mentioned indicator, while the NKS of 2.80% was also used, which was corrected to the monthly level and amounted to 0.233%. The negative result of the funds Allianz Short Term Bond, Erste Adriatic Bond, OTP e-start fund, OTP start fund, Raiffeisen Flexi Euro, ZB Bond, ZB eplus and ZB plus indicates a situation in which the mentioned funds achieved a lower average rate of return compared to the risk-free investment, which is certainly not adequate information for potential investors. Based on the calculated Jensen's alpha measure, he concludes that in 6 out of a total of 11 analyzed funds, this indicator is negative, which indicates that the mentioned funds do not generate satisfactory returns, that is, that they do not generate a sufficiently high return in relation to the level of risk of their investments. Based on the conducted analysis, it is concluded that the group of bond funds does not currently represent the most acceptable group of funds in which it would be worthwhile to invest due to the obtained results of the indicators, which are mostly with a negative signs, regardless of their lower risk. The last group of funds that were analyzed is mixed funds that belong to the moderately risky fund group, so for calculating the Sortino ratio, a MAR of 0.70% was used. Based on the results obtained, it is concluded that all six analyzed mixed UCITS funds had a positive value of the Sortino ratio. That is, it is concluded that 5 out of 6 funds achieve returns higher than the previously defined MAR, namely Allianz Portfolio, Eurizon HR Global funds, Generali Balanced, HPB Global and ZB Global. Furthermore, when calculating the Sharpe ratio, an NKS of 2.80% was used, as with the previous two groups of funds, which were adjusted to the monthly level for the calculation, and for this reason, it is 0.233%. According to the obtained results, it is visible that all funds achieved a positive value of the specified indicator except the OTP balanced fund (-0.0497), which indicates that all the specified funds achieved a higher average rate of return compared to a risk-free investment. Observing Jensen's alpha indicator, it is evident that all analyzed funds achieved positive values of the indicated indicator, which means that all funds achieve a satisfactory return concerning the assumed risk of their investments, i.e., all mentioned funds achieved a higher return than the expected rate of return according to the CAPM model. Based on the obtained results, we conclude that mixed funds represent a group of UCITS funds in which it is very worthwhile to invest, considering the results of the analysis and the indicators that indicate the success of this group of funds, and which, due to their riskiness, enable the achievement of higher returns compared to bond funds.

5. CONCLUSION

This work aimed to analyze the operations of existing UCITS funds in the Republic of Croatia, emphasizing equity, bond and mixed funds as one of the largest and most represented institutional investors in the Croatian capital market. Based on the conducted analysis, it is concluded that the obtained results indicate the unfavorable performance of the analyzed UCITS funds from the aspect of the asymmetry coefficient, considering that the measures are less than zero. Hence, there is an asymmetric tail distribution extending towards negative values. Given that every investor prefers positive coefficients because they lead to a decrease in absolute risk aversion, it is considered that this result is not attractive to potential investors. Likewise, to carry out the analysis, measures related to risk analysis were calculated (Sortino ratio, Sharpe ratio, Jensen's alpha), which, from the aspect of bond and mixed funds, indicate a positive effect of the analyzed funds on the money market, given that the realized returns are higher than the previously defined MAR as a risk factor, which of course makes sense in accordance with the riskiness of bond and mixed funds. On the other hand, equity funds have a negative effect because the specified returns are lower than the defined MAR, which indicates the high risk of the specified funds. Based on this paper, it is concluded that there is an excellent potential for investment funds in the Croatian capital market, given that they are no longer just a privilege for wealthy individuals but an investment for all legal and natural persons who want to secure their future through investments in them. Although due to the current situation in the Croatian market, there is a certain mistrust of investors towards investments in investment funds as well as towards other types of investments, in the future, this will undoubtedly change, considering that more and more people are beginning to understand the benefits of investing in investment funds as a form of placing surplus funds.

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LIFE SATISFACTION AND ITS DETERMINANTS – CONVERGENCE OR DIVERGENCE IN THE EUROPEAN UNION?

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ABSTRACT
The article is a discussion concerning different aspects of life satisfaction, its determinants and the assessment of its domains. Life satisfaction is a multidimensional concept which encompasses more than just economic power and living standards of individuals. Taking into account that it expresses the degree of satisfaction with life on many different levels, it should be stressed that it is strongly related to the subjective experiences of the individual and objective factors influencing a person e.g. work, own achievements, family life, social contacts, living conditions, etc. Considering the above, the purpose of the article is to present the differences and similarities of life satisfaction assessment between the European Union countries, with particular emphasis on the life satisfaction of Poles during the COVID-19 pandemic. The implementation of the aim of the article required critical analysiss of literature and empirical data analysis obtained from the World Values Survey and Eurofound. These methodologies were selected to check the differences between the results obtained in the European Union member states. The diagnostic survey method was used to prepare the last part of the article. The survey questionnaire was developed by the employees of the Department of Labour Market Forecasting and Analysis at the University of Economics in Katowice. It was conducted in December 2020 and 2021 on a representative group of 1,067 Poles. The results presented in the article confirm the differences in the level of life satisfaction between the EU countries, and in the case of Poland, also the differences in satisfaction with different life domains.
Keywords: *life satisfaction, subjective well-being, quality of life, work, the European Union*

1. INTRODUCTION
Life satisfaction is a multidimensional and ambiguous concept, defined in various ways depending on the context and perspective adopted by the researcher and the scientific discipline she/he represents. The issue of satisfaction with life in relation to the professional and private spheres is becoming more and more important, on the one hand due to the possibility of sustainable human development, and on the other hand, problems with reconciling both of these activities, which has a significant impact on the perceived quality of life. The author of this article is interested in the subjectively perceived satisfaction with life as a whole and its domains, including professional and personal life, as opposing and at the same time mutually influencing aspects of the quality of life. Taking into account that individual domains of life are complementary and interdependent, their functioning is influenced by many different factors. One of them that particularly influenced the assessment of life satisfaction in recent years was the pandemic COVID-19 and its consequences. However, it should be stressed that the impact of the pandemic on the economies and societies was diversified, which to some extent is reflected in the diversification of the assessment of life satisfaction among the inhabitants of individual countries. Thus, the aim of the article is to present the differences and similarities of life satisfaction assessment between the European Union countries, with particular emphasis on the life satisfaction of Poles during the COVID-19 pandemic. The implementation of the goal formulated in this way required the following research questions:

- How big are the differences in the perception of life satisfaction between EU countries?
- How differences in research methodology affect the obtained results?
- Has the assessement of life satisfaction changed during the pandemic COVID-19?

The implementation of the aim of the article required critical analysiss of literature and empirical data analysis obtained from the World Values Survey (WVS) and Eurofound. These methodologies and indicators were selected to check the differences between the results obtained in the European Union member states. The diagnostic survey method was used to prepare the last part of the article.

2. LIFE SATISFACTION AND ITS DETERMINANTS

Life satisfaction is a category differently defined and analyzed in various perspectives (e.g. subjective and objective, international, national, across various socio-professional groups), depending on the adopted context, the way of conceptualizing and operationalizing this concept (Prasoon R., Chaturvedi 2016, Skórska, 2022a). Selected definitions are presented in Table 1.

Author	Definition
Summer (1966)	A positive evaluation of the conditions of your life, a judgment that at least on balance, it measures up favorably against your standards or expectations
Andrews (1974)	life satisfaction symbolizing an overarching criterion or ultimate outcome of human experience
Diener, Emmons, Larsen, & Griffen, (1985)	individual’s cognitive judgment about comparisons based on the compatibility of their own living conditions with the standards
Veenhoven (1996)	life-satisfaction is the degree to which a person positively evaluates the overall quality of his/her life as-a-whole. In other words, how much the person likes the life he/she leads.
Bradley & Corwyn (2004)	life satisfaction reflects both the extent to which basic needs are met and the extent to which a variety of other goals are viewed as attainable. From this perspective it reasonable seems that by realization of more goals, satisfaction with life will also increase.

Table 1: The definitions of life satisfaction
(Source: Summer, 1996, Andrews, 1974, Diener et al, 1985, Bradley, Corwyn, 2004, Veenhoven, 1996)

Life satisfaction is an overall assessment of feelings and attitudes about one’s life at a particular point in time ranging from negative to positive. It is one of three major indicators of well-being: life satisfaction, positive effect, and negative effect (Diener, 1984). Life-satisfaction is also indicated as one of the measures of quality of life. The bibliography, data about life-satisfaction and its correlates may be used for several purposes that are catalogued in the `World Database of Happiness' (Veenhoven, 2022). The assessment of life satisfaction results primarily from comparing one's own situation with the standards and goals set by oneself (Veenhoven, 1996), taking into account individual characteristic and criteria of each person. The assessment of life satisfaction is influenced by both individual experiences, as well as objective factors influencing a person related to the long- medium- and short-term perspective (Bjørnskov et al, 2008, Sousa, Lyubomirsky, 2001). They can be grouped in variety of ways, such as:

- internal factors (personality),
- external factors (situational factors such as material status or marital status),
- biological factors (genetic, such as gender or age)
- cultural factors,
- personal resources like social position,
- a person's life experiences and their interpretation.

3. LIFE SATISFACTION – HOW TO MEASURE IT?

Life satisfaction surveys have been conducted for many years by various institutions and organizations, both at the international level (e.g. WHO, OECD, EU, UN) and at the national level (in Poland mailny by the Central Statistical Office), but also by individual researchers. Various methods and measures are used, which makes it difficult to compare the obtained results. Researchers differentiate between global life satisfaction and life-domain satisfaction. The first approach will be presented on data from the Worldd Values Survey and Eurofound, the second one – using data from my own research. Life-domain satisfaction refers to satisfaction with specific areas of an individual's life (e.g. work, income, family) while the assessment of global life satisfaction refers to an individual's overall judgement of his/her life. Some measures consist of a single question (Andrews, Withey 1976), such as, "How satisfied with your life are you overall?", others measures require participants to respond to multiple items. The most widely used and most well-validated measure of life satisfaction is a multi-item scale, the Satisfaction With Life Scale, designed by Diener and his colleagues (1985). The participants are asked to rate five statements on 7-point Likert-type scales. However, numerous attempts are being made to create a better, more appropriate way of measuring life satisfaction, as is exemplified by The European Index of Life Satisfaction (EILS) (Maricic, 2019), Happiness Adjusted Life-Years' or 'Equality Adjusted Happiness'(Veenhoven 2005). The research results presented in further parts of the article exemplify the problems of measuring life satisfaction. They include:

- data from the World Values Survey (WVS),
- research results of Eurofound,
- the results of own research.

3.1. The World Values Survey

The World Value Survey (WVS) and European Value Study (EVS) are two large-scale, cross-national, and repeated longitudinal survey research programs, started in the early 1980s. The last, 7th wave of the WVS took place worldwide in 2017-2022. (Haerpfer et al., 2022). Among a large number of questions, which have been replicated over time and across the EVS and the WVS surveys, issues related to life satisfaction and its components occupy an important place. Though most people in the European Union are satisfied with their life (mean - 7.4), not everybody is equally satisfied. There are sizeable differences between individual citizens within countries, as well as disparities in average life-satisfaction between countries, as presented in Fig. 1. The lowest level of satisfaction with life is achieved by the inhabitants of Bulgaria and Greece (below 6.2), while the highest - by the inhabitants of Finland, Denmark and Austria. In Poland, the level of satisfaction with life exceeded 7.5, which means that it is higher than the EU-27 average and comparable to Czechia, Sweden and, somewhat surprisingly, to the Netherlands.

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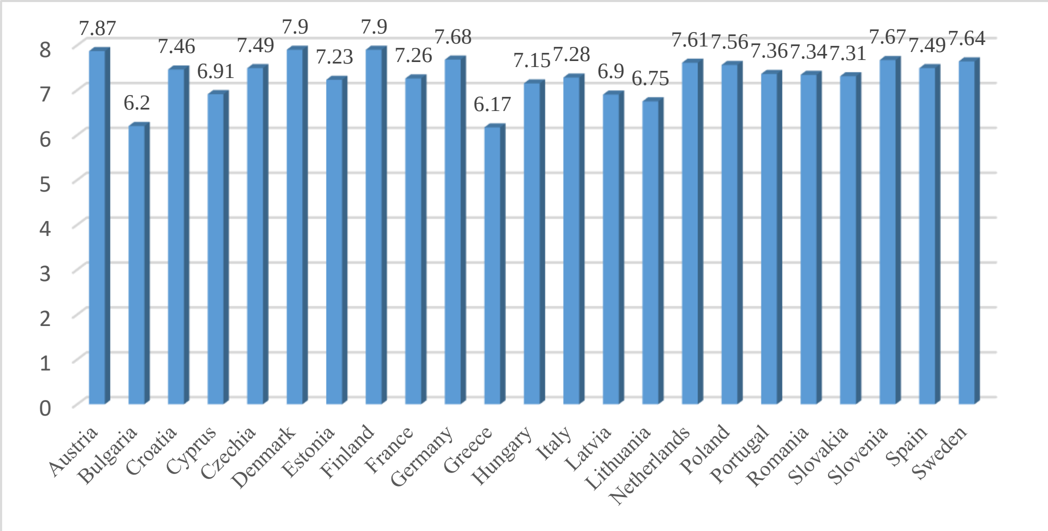

Figure 1: Satisfaction with life in the European Union members
(Source: own calculation based on data from: https://www.worldvaluessurvey.org 23.08.2022)

It should be noted that the highest percentage of respondents completely satisfied was in Romania (23,8%) and Croatia (21,9%). On the other hand the highest percentage of respondents completely dissatisfied with their life was in Bulgaria (5,8%), Greece (3,6%), but also in Romania and Croatia (2,5%).

3.2. Eurofound

As part of the research conducted by Eurofound, also during the pandemic COVID-19, a range of topics were distinguished: life satisfaction, happiness, optimism and resilience, health, support and (mental) well-being. In the context of life satisfaction, the respondents were asked to answer the following question: "How satisfied would you say you are with your life these days?", using a scale of 1 to 10, where 1 meant very dissatisfied and 10 meant very satisfied.

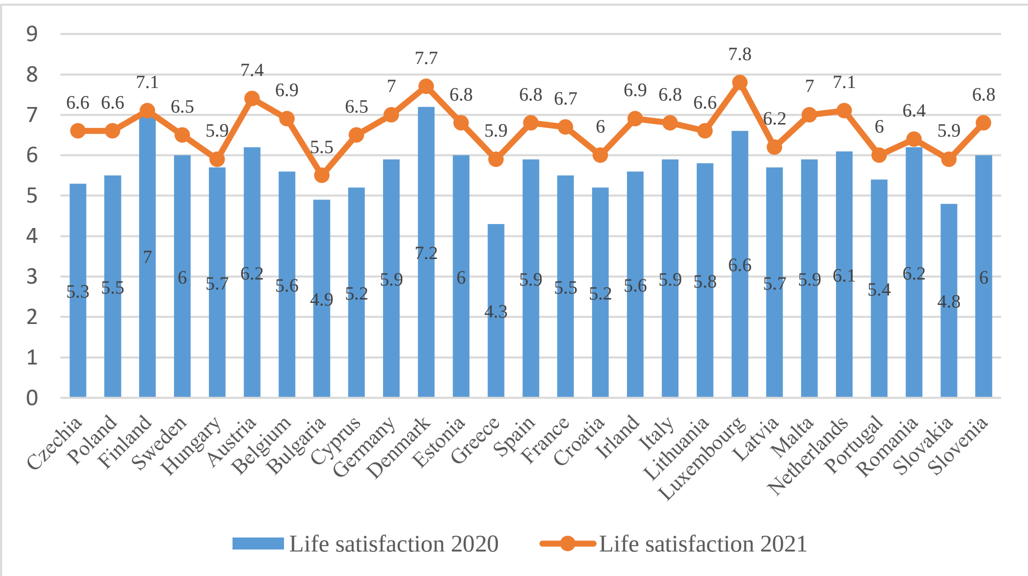

Figure 2: Satisfaction with life in the European Union members by Eurofound
(Source: own calculation based on data from https://www.eurofound.europa.eu/data/covid-19/quality-of-life, 23.08.2022)

The analysis of the data presented in Fig. 2 confirms the differentiation between individual EU countries. The inhabitants of Denmark, Luxembourg, Austria and the Netherlands achieve the highest satisfaction with life (above 7.1 in 2021). In Poland, the average level of satisfaction with life in 2021 was 6.6 and was comparable to Czechia, Lithuania, France or Cyprus, and was higher than the EU-27 average (5.7). It is worth noting that compared to 2020 – at the beginning of the pandemic COVID-19, an increase in life satisfaction was recorded in all countries. The highest increases were recorded in Greece, Ireland, Belgium and the Czech Republic. In each of the analyzed years, the lowest life satisfaction was achieved by the inhabitants of Greece, Bulgaria and Slovakia (below 5.0 in 2020).

3.3. Conclusions

Summing up, the presented research results confirm the differentiation of satisfaction with life occurring between individual EU countries, but also some similarities between them. For many years, satisfaction with life has been relatively high in the Scandinavia and Western Europe, which may be partially associated with the living conditions, the level of development of these countries and the quality of life. In the case of Denmark or Finland, an important role is played by the state model supporting the equality of women and men, their working and living conditions, and work life balance. The lowest life satisfaction is achieved by the inhabitants of Central and Eastern Europe (e.g. Bulgaria), and some Mediterranean countries (e.g. Greece). Most of these countries are characterized by a relatively low level of income and a common past - belonging to the former socialist bloc. In the case of Greece, the most important role is played by economic factors, including the effects of the COVID-19 pandemic and the earlier economic crisis. It should be noted that the comparison of the results of life satisfaction surveys does not give unequivocal results, which is also confirmed by other studies and analyzes (Bonini, Bonini, 2008). While the results are consistent for the countries with the lowest (Greece, Bulgaria) and highest (e.g. Denmark) levels of life satisfaction, there are significant differences among other countries. For example, in the Eurofound survey, Poland was ranked 14th, and in the WVS survey, it was ranked 7th. Similarly, Croatia, which is in the last position in the Europfound survey (22nd), and in the VS survey - 10. These differences confirm the need to intensify work on the adoption of a uniform research methodology, which would facilitate the comparison of the situation of individual countries, especially in the long term.

4. LIFE SATISFACTION IN POLAND – RESEARCH RESULTS

The diagnostic survey method was used to prepare the last part of the article. As far as data collection tools were concerned, the conduction of the research involved the use of anonimoy survey questionnaire, developed by the employees of the Department of Labor Market Forecasting and Analysis at the University of Economics in Katowice (Skórska, 2022b). It was conducted in December 2020 and 2021 on a representative group of 1,067 Poles. The sample size was determined based on the statistical equation. The main objective of the survey was to conduct a comprehensive assessment of life satisfaction during the COVID-19 pandemic. The results presented in the article are only part of a much more extensive research. Characteristics of the research group are presented in Table 1.

Table following on the next page

Socio-demographic characteristics		Number		%	
		2020	2021	2020	2021
Gender	Women	559	557	52,4	52,2
	Men	508	510	47,6	47,8
Age	18 – 25 (Z generation)	215	172	20,2	16,1
	26-41 (Y generation)	303	312	28,4	29,2
	42-55 (X generation)	261	247	24,4	23,2
	57 and more (Baby boomers)	288	336	27,0	31,5
Educational attainment level	Less than primary and primary education	25	27	2,3	2,5
	Lower secondary education	110	108	10,4	10,1
	Upper secondary and post-secondary non-tertiary education	504	498	47,2	46,7
	Tertiary education	428	434	40,1	40,7
Marital status	Single persons (never in legal union)	282	292	26,4	27,4
	Married persons	642	622	60,2	58,3
	Divorced persons	70	84	6,6	7,9
	Separated persons	12	10	1,1	0,9
	Widowed persons	61	59	5,7	5,5
Place of residence	City	846	826	79,3	77,4
	Country	221	241	20,7	22,6
Status on labour market	Employed persons	660	702	61,9	65,8
	Unemployed persons	61	25	5,8	2,3
	Retirement	224	255	21,0	23,9
	Inactive persons because of disability	40	41	3,7	3,8
	Student	48	20	4,5	1,9
	Pupil	20	9	1,9	0,8
	Inactive persons for other reasons	14	15	1,4	1,4

Table 1: Socio-demographic characteristics of the research group
(Source: own calculation based on the research results)

The research used the 7-point R. Likert scale (where 1 menas – “I am very unsatisfied and 7 means – “I am very satisfied”), which allows to detect even relatively subtle differences in the respondents' attitudes. The purpose of using a 7-point scale was to increase the reliability and accuracy of the measurement, which is confirmed by numerous studies (Alwin 1997, Churchill, Peter, 1984, Cicchetti i in. 1985, Cox, 1980). On the basis of the obtained results, it can be concluded that the respondents are rather satisfied with their lives - the highest percentage of them (37%) assessed it as "5". Higher scores were characterized by a slightly lower percentage of respondents ("6" - 19%, "7" - 6-7%), as presented in Fig. 2. The percentage of people who are very dissatisfied with life is much lower (“1” - 2.2% and “2: - 3.7-4,8%). It should be noted that in both cases - the highest and the lowest ratings - there was a slight increase in their percentage in 2021.

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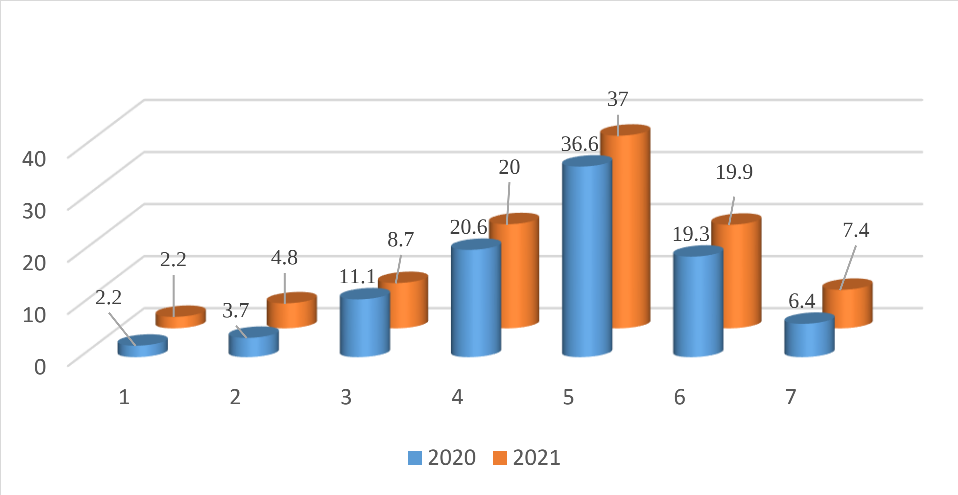

Figure 2: Satisfaction with life - % of respondents answers
(Source: own calculation based on the research results)

The subjective sense of satisfaction with life is determined by many factors related to living and working conditions as well as social relations and the value system. Taking into account the multidimensionality of human life, and at the same time the complementarity of its individual domains, it is necessary to indicate them when aassessing life satisfaction. Work and personal life are such two basic interdependent domains. Although work is very important, because in many cases it is the main source of satisfying consumer needs and it ranks high in the hierarchy of Poles' values, satisfaction with personal life is equally important for the perception of the quality of life. Satisfaction with work or the lack of it affects private life, and vice versa - a satisfying personal life will affect motivation, commitment and efficiency at work (Skórska 2019). The research shows that the relatively high level of life satisfaction of the respondents was much more influenced by satisfaction with personal life than with work and financial situation. The percentage of respondents who were very satisfied with their work slightly increased from 9,9% in 2020 to 10,4% in 2021. On the other hand, the percentage of respondents who were very dissatisfied with their work was 14% in 2020 and increased by 1.2pp in 2021. The percentage of those who were rather dissatisfied (rating - “2”), regardless of gender and year of the survey, was around 8 pp. lower than the percentage of those who are rather satisfied (rating - “6”), as shown in Table 2. One of the key factors directly related to job satisfaction is the income received by respondents. This is the area where the percentage of the very satisfied was the lowest - it did not exceed 3%, with the highest percentage of the very dissatisfied, regardless of gender, exceeding 10% in 2021. The percentage of respondents who rated their income at the level of 1-2 exceeded 21% in 2021, while those who rated it at the level of 6-7 were half as much. Income directly affects the standard of living, however the percentage of those who were very dissatisfied with this aspect of life was much lower (3,1-3,4%), while the percentage of those who were very satisfied was slightly higher (4,1-5,3%).

Table following on the next page

Year	Rate	Life satisfacton - % of respondents answers							
		Job	Standard of living	Income	Family life	Work life balance	Health	Access to healthcare	Access to infrastructure
2020	1	14,0	3,4	8,2	3,1	5,5	2,9	6,8	12,0
2021		15,2	3,1	10,3	3,2	6,7	3,8	7,8	3,6
2020	2	7,9	5,8	11,1	3,7	5,9	5,6	7,1	13,8
2021		7,2	7,2	10,7	3,9	5,5	6,1	11,7	6,0
2020	3	11,4	15,9	19,6	8,4	9,5	11,4	13,5	17,8
2021		11,8	13,4	18,3	7,7	9,0	10,9	15,3	10,8
2020	4	18,0	25,1	26,4	16,6	23,2	21,3	22,8	21,0
2021		17,7	24,6	24,7	11,6	21,3	20,7	21,5	21,5
2020	5	23,1	28	22,2	21,8	26,7	26,7	22,5	19,7
2021		22,5	31,6	24,1	21,2	22,5	26,3	22,7	26,0
2020	6	15,8	16,5	9,7	24,7	15,7	24,9	19,3	10,9
2021		15,2	16,0	9,4	24,7	18,4	22,5	14,5	18,4
2020	7	9,9	5,3	2,8	21,8	13,5	7,1	8,1	4,6
2021		10,4	4,1	2,5	27,7	16,6	9,7	6,5	13,7

Table 2: Assessement of satisfaction with selected domains of life in 2020 and 2021 (%)
(Source: own calculation based on the research results)

The analysis of aspects related to personal/family life shows that in 2020 almost 22% of respondents were very satisfied with their family life, and in 2021 this percentage increased to 28% of indications. During this period, the percentage of very dissatisfied people, regardless of gender, did not exceed 3,2%. Combining ratings 6-7, the percentage of those who were very satisfied exceeded 52% in 2021, and the percentage of those who were dissatisfied was lower by 45pp. Interestingly, the reconciliation of family and professional spheres of life was the cause of dissatisfaction for a larger group of respondents. It was 5,5% in 2020 and6,7% in 2021. Taking into account that in many cases childcare and housework are performed by women, over 12-13% of the respondents expressed their dissatisfaction in the survey, while the percentage of very dissatisfied men was slightly lower. The percentage of men and women very satisfied with their work life balance amounted to 13,5% in 2020 and in the next year - increased to almost 17%. This may indicate that as the pandemic lasted longer, people began to get used to the new conditions, dividing the time devoted to work, family, rest, hobbies more appropriately, and deriving more pleasure and satisfaction from them (Skórska, 2021). Overall life satisfaction is also influenced by the individual's health condition and the access to health care. The indisputable, negative impact of the COVID-19 pandemic on these domains of life meant that they were rather poorly assessed by the respondents. Although over 30% of the respondents assessed their health condition as very satisfactory (6-7 ratings), only 20% of them rated access to health care so highly. On the oher hand similar percentage of respondents was very dissatisfied (ratings 1-2) with the access to healthcare. This result is not surprising due to the limited access to healthcare, especially in the first months of the pandemic, with numerous coronavirus infections. The restrictions related to the COVID-19 pandemic also affected the access of the cultural, sports and entertainment offer, which was partially reflected in the results obtained. Only 4,6% of men and women in 2020 were very satisfied with access to cultural and sports infrastructure, compared to 13,7% in the next survey. In the first months of the pandemic, 12% of respondents were very dissatisfied with the limited access to this infrastructure. In 2021, this percentage dropped to just 3,6%, as presented in Table 2. To sum up, the life satisfaction is influenced by many different factors, ranging from the differentiation of the needs and expectations of individuals, through their value system, and ending with the motives for making decisions. In assessing life satisfaction, an important role is played by comparing your own life and achievements to other people, e.g. family, friends or acquaintances.

Regardless of these differences, research has confirmed that material conditions and their derivatives constitute a certain point of reference for life satisfaction, but that relationships with loved ones, health and balance in life are much more important. Their appreciation was additionally influenced to a greater extent by the COVID-19 pandemic and the restrictions introduced during it.

5. CONCLUSIONS

The growing awareness of the complexity of the contemporary world has resulted in the fact that in recent decades countries worldwide are slowly shifting their policy goals form purely economic to social ones. They include issues related to the quality of life, well-being and satisfaction with life. The interest in the issues of life satisfaction and its domains, their impact on other areas of an individual's and society's life is reflected in the number of publications, research requiring an appropriate methodology and indicators. Unfortunately, due to the differences in defining the concept itself and the measurement methods (eg UN, OECD, Eurostat, Eurofound etc.), comparative analysis is difficult. Regardless of the differences in methodology and the selection of indicators, research confirms that high satisfaction with life characterizes Scandinavia and Western Europe, while it is rated much lower by the inhabitants of Central and Eastern Europe, such as Bulgaria, or the Mediterranean, such as Greece. On the one hand, it is correlated with a high level of socio-economic development of some countries (including living conditions, employment, income, access to infrastructure etc.) and on the other hand, with belonging to the former bloc of socialist countries and a lower level of development, as well as the perceived consequences of the COVID-19 pandemic. High satisfaction suggests that the quality of life is good, while low satisfaction marks serious shortcomings of some kind. However, it should be noticed that the assessments concerning individual domains of life satisfaction show significant differentiation, as exemplified by Poland. It remains important because of the correlation between life satisfaction and its individual aspects, including income, work, work-life balance, physical and mental health not only at a given moment, but also in the future. Summarizing, understanding how life satisfaction varies across countries, regions and individuals and identyfing the causes of well being should be important considerations for organizations and goverments. Attempts to explain the connections and the impact of individual domains of life satisfaction on the quality of life constitute an important contribution to a better understanding of the functioning of individuals and societies - the differences and similarities between them.

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MANAGING ORGANIZATIONS TOWARD NET-ZERO PERFORMANCE

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ABSTRACT

Recently, there has been increased interest among governments, researchers, and industry in climate change and carbon neutrality, especially focusing on achieving the net-zero position of business organizations. Climate changes have become a major concern for all kinds of business organizations. As those changes are already impacting their business, organizations are trying to understand how those changes are going to affect their business, and which actions they need to undertake for achieving the sustainability goals. Hence, many organizations are prioritizing the necessity of a greener future and are searching the ways to implement new transition strategies toward net-zero business. Organizations are trying to develop and incorporate carbon neutrality and net-zero performance into their sustainable development strategies to improve their resilience. Thus, the aim of the paper is to develop a framework for net-zero performance management in business organizations. The proposed net-zero performance management process can help organizations in achieving long-term resilience and stimulating a positive synergy among the community, businesses, and the environment.

Keywords: *net-zero, greenhouse gases, emissions, performance, management*

1. INTRODUCTION

Greenhouse gases (GHGs), like carbon dioxide (CO_2), are released during the combustion of fossil fuels for households, factories, transport, etc., whereas methane is produced in agriculture and in landfills. These human-caused emissions are causing global warming. As a consequence, the transition to renewables and high fossil efficiency has emerged (Van der Meijden & Smulders, 2017). The extensive use of fossil fuels and massive deforestation are reasons for the environment protection strategies of corporate responsible businesses and their urgent actions in direction of profound carbon reduction and carbon neutralization through removals (IGD, 2021). The 21st century is characterized by climate changes and hence it is necessary to build a sustainable, net-zero economy that is resilient to those changes (Stern & Valero, 2021). The notion of net-zero emissions almost always goes hand in hand with warnings about the consequences of global warming, as well as promises made by countries in the direction of reducing the harmful GHGs emissions to the environment and the planet. By signing The Paris Agreement 2015, as well as the intergovernmental agreement adopted at the 26th UN Climate Change Conference of the Parties - COP26, the countries set plans to reduce GHGs emissions and achieve an ambitious goal by 2050 – net-zero emissions, to ensure that actions taken by governments and businesses slow global warming. Basically, the net-zero target means stopping the increase of GHGs emissions in the atmosphere. Business organizations in all industries play a crucial role in delivering GHGs emissions reduction targets and achieving net-zero. They should demonstrate corporate social responsibility and actual progress towards a positive environmental contribution by reducing carbon emissions, solid waste, clean water use, soil degradation, and negative effects on biodiversity and natural resources. Also, organizations should create a healthy and safe working environment for their employees. Climate change has already induced several risks for business organizations: physical, transitional, and liability risks (Basel Committee on Banking Supervision, 2021). Understanding and anticipating climate change can assist business organizations in mitigating physical risks and assessing the likelihood of extreme weather events, which can cause serious negative effects in terms of increased expenditures and lost revenues. Transitional risks especially affect the business operations related to the fossil-fuel economy; hence, organizations should make radical business changes by adopting new green technologies. These radical changes in business operations can jeopardize the market position of an organization and even put in question its mere survival. As regards liability risks, organizations are likely to face greater liability risks and legal liabilities if they fail to assess and disclose financial risks associated with climate change and their impacts on business and competitive performance. Climate change is becoming a major concern for all kinds of business organizations: commercial, public, and non-profit ones. Therefore, many organizations are trying to understand how those changes are going to affect their business, as well as the actions that they need to undertake for achieving the sustainability goals. As many climate changes are already impacting their business, organizations are searching the ways to implement new transition strategies toward net-zero business. Traditional business models cannot deal with the complexity of climate change and technological shifts, since they overemphasize the costs and moderate the prospects of decarbonization (Lombard, 2019; Zenghelis, 2022). Decarbonization is vital, especially for the heating and transport sectors. These sectors require urgent interventions toward GHGs emission reductions. New business models require green products or “net-zero-aligned” products (Unsworth et al., 2020) and net-zero-aligned investments in business organizations in all sectors and regions. Environmentally friendly and energy-efficient products have a great potential for emissions reduction. Investments in the restoration of natural resources, clean production processes, carbon capture utilization and storage, renewable energy sources, and energy efficiency of buildings are the future of a sustainable economy and society (Popović & Radivojević, 2022). Bearing the previous in mind, organizations should develop the capabilities to adapt their business model and implement initiatives, programs, and actions to achieve long-term resilience and stimulate a positive synergy among the community, businesses, and the environment. Hence, the transformation strategies of business models will facilitate their transition towards achieving the net-zero targets. Human-caused climate change does not bring only negative implications for businesses but also creates some new opportunities for businesses. This is particularly the case for those businesses that have ‘clean’ solutions to meet societies’ needs, or for those that can help local communities to build their resilience to the physical impacts of climate change. Organizations have a chance to profitably reduce emissions in existing business activities and processes (Plamberk, 2012). There are a lot of ways for expanding the potential of a “zero-emission” business. The aim of the paper is to develop a framework for net-zero performance management in business organizations. The paper is structured as follows. After the introduction, the concept of net-zero performance is described, followed by the net-zero performance management process and its key phases. Finally, the conclusion summarizes the main findings and provides recommendations regarding the implementation of the net-zero performance management process.

2. NET-ZERO EMISSION – CONCEPT AND PERFORMANCE

To prevent the negative climate change impacts on the planet, the net-zero emission concept has been introduced to various levels: country, region, and business organizations. This concept entails the initiatives, programs, and actions aimed at reducing the GHGs emissions in the atmosphere (CO_2, SO_2, methane, and other gases) to reach a net-zero (Matemilola & Salami, 2020). The final goal is to reach overall carbon neutrality which leads to a zero-carbon footprint (IPCC, 2018; Oshiro et al. 2018). Net-zero emission performance describes a solution where the amount of CO_2 and other GHGs emitted into the atmosphere is equal to the amount of CO_2 and other GHGs removed (IPCC 2018). Net-zero is commonly defined as a balanced performance of sustainable development as *CO_2 emitted is equal to CO_2 removed.* Net-zero emission is also sometimes used interchangeably with carbon neutrality and net-zero carbon footprint, which both refer to achieving net-zero emissions by balancing carbon emissions including other GHGs measured in terms of their carbon dioxide equivalence.

3. NET-ZERO PERFORMANCE MANAGEMENT PROCESS – KEY PHASES

There are five key phases that business organizations could pass on their path toward net-zero targets in the corporate strategy of sustainable development:

1) Integrating decarbonization as a business philosophy in organizational mission, strategy, and business model;
2) Estimating, measuring, and reporting actual net-zero (carbon footprint) performance;
3) Planning the desired, future net-zero (carbon footprint) performance and planning the finances for the implementation of net-zero programs and actions;
4) Implementing designed net-zero programs and actions aligned with the net-zero (decarbonization) strategy, analyzing realized GHGs emission reduction interventions, necessary organizational resources, and other performance improvements by comparison with planned control performance standards;
5) Informing consumers and other key stakeholders about net-zero (carbon footprint) performance.

3.1. Integrating decarbonization as a business philosophy in organizational mission, strategy, and business model

The corporate strategy and business units' strategies must incorporate the goals of sustainable development and social responsibility. In developing these strategies, it is necessary to identify key stakeholders and social and environmental issues related to the specifics of the industry or geographical location of the organization. The strategy must focus on the use of natural resources, GHGs emissions, energy-efficient solutions, waste management, and health and safety risks resulting from business operations. Besides, organizations from various industries are under different pressure from political institutions, consumers, and activists of diverse associations and organizations. These different pressures are becoming important external drivers of the sustainable development of an organization. In shaping the strategy, the results of assessing possible social and environmental impacts are also important. Hence, organizations should compile product life cycle reports and based on them provide an overview of the possible impact on the environment of all or only new products over their life cycle. Additionally, it is important to evaluate the impact on the environment through different aspects of production and commercialization processes, as well as product research and development, design, distribution, marketing, packing, recycling, etc. For example, the organizations in the automotive industries, in their efforts to reduce the greenhouse effect, need to quantify GHGs emissions and, based on that, estimate the magnitude of their impact on climate change. Estimates are not difficult to make given the number of vehicles produced (and assumed to be in operation) and the number of newly produced vehicles, as well as the average CO_2 emissions from factories.

In this way, by the product life cycle assessments, organizations can better understand the environmental and social determinants of their business activities, and thus provide valuable information for improving their strategy of sustainable development of an organization. Based on the general goals and strategies of sustainable development, it is necessary to take action to achieve those goals. The strategy of sustainable development, and net-zero strategy as its segment, should be in line with corporate strategy and business units' strategies. In combating the increase in GHSs, organizations should adopt sustainable practices and reduce emissions. The sustainable practices and net-zero strategies encompass a wide range of business activities, such as eco-products made from recycled and sustainable materials and eco-packaging made from recycled materials, as well as eco-friendly transport and distribution. Apart from profit maximization, organizations should have accountability to the planet and community. Hence, the net-zero strategy represents an integral part of the sustainable development strategy of an organization. Based on this strategy, it is necessary to develop plans and programs for its implementation, as well as, design adequate organizational structure and support systems. The net-zero strategy entails the development of carbon-neutral business models and products. Besides, it assesses various options for the reduction of GHGs emissions. The carbon-neutral business models and products can turn climate change risks into opportunities for obtaining and sustaining a competitive position in the market. For example, the ZETA's business model eliminates around 80% of the buildings' associated emissions, as their buildings' designs produce as much energy as they consume after the installation (Plambeck, 2012). Consumers with developed environmental conciseness push organizations to implement net-zero strategies. Consequently, organizations benefit from such strategies, because of the image and reputation which are built based on carbon-neutral products and brands. Such products attract new customers and increase market power, while organizations with net-zero strategies attract talents and thus strengthen their employer brand. In order to align the organizational strategy with the net-zero strategy, it is necessary to identify risks and impacts regarding GHGs emissions across the value chain (supply, operations, customers, and end-use/disposal of product for material goods), set evidence-based goals at all organizational levels, and ensure allocation of financial resources according to the defined net-zero targets. These actions are not only important for large organizations but also for small and medium-sized enterprises (SMEs). SMEs are crucial for the successful implementation of the net-zero transition, "due to their involvement in the supply chains of larger firms, their capacity for innovation, and their role in providing end-of-the-chain consumer goods" (APPG, 2021). The design and implementation of the net-zero strategies at the microeconomic level of organizations represent an integral part of the macroeconomic net-zero strategy of national economies. This macroeconomic net-zero strategy requires adequate support and leadership from the government and decision-makers. Governmental involvement is crucial for business organizations in terms of supportive funding for the net-zero transition.

3.2. Estimating, measuring, and reporting actual net-zero (carbon footprint) performance

Measurement of the carbon footprint performance is important for understanding the current emissions status of an organization. For this purpose, organizations can use the seven dimensions of measurement recommended by Global Reporting Initiatives – GRI (Table 1). Namely, GRI in its Sustainability Reporting Guidelines G4 lists the environmental indicators through the following dimensions (GRI, 2013): materials, energy, water, biodiversity, emissions, effluents and waste, products and services, compliance, transport, overall, supplier environmental assessment, and environmental grievance mechanisms. The purpose of these guidelines is to assist business organizations in selecting the environmental performance they will estimate, measure, and report in both annual business reports and sustainable development reports, as well as in a special report on climate risk and impact. An example of good practice in such reporting is Nestlé (Nestlé, 2021).

Topic-specific disclosure	Measurement and evaluation of emissions
GRI Disclosure 305-1	Direct (Scope 1) GHG emissions
GRI Disclosure 305-2	Energy indirect (Scope 2) GHG emissions
GRI Disclosure 305-3	Other indirect (Scope 3) GHG emissions
GRI Disclosure 305-4	GHG emissions intensity
GRI Disclosure 305-5	Reduction of GHG emissions
GRI Disclosure 305-6	Emissions of ozone-depleting substances (ODS)
GRI Disclosure 305-7	Nitrogen oxides (NO_X), sulfur oxides (SO_X), and other significant air emissions

Table 1: GRI Emissions 305
(Source: GRI, 2018)

GHG Protocol standards and guidance enable organizations to measure, manage and report GHGs emissions from their operations and value chains. Under the GHG Protocol "direct" emissions are emissions from sources that are owned or controlled by the reporting entity, while the "indirect" emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity (Greenhouse Gas Protocol, 2011). Carbon footprints are used to quantify the environmental impact of carbon emissions at the organizational level from daily energy consumption by accounting for all *Direct emissions* (Scope 1), *Energy indirect emissions* from consumption of purchased electricity, heat, or steam (Scope 2), and *Other indirect emissions* (Scope 3). *GHG emissions intensity* reports the following information (GRI, 2018): a) GHG emissions intensity ratio for the organization; b) Organization-specific metric (the denominator) chosen to calculate the ratio; c) Types of GHG emissions included in the intensity ratio; whether direct (Scope 1)**,** energy indirect (Scope 2), and/or other indirect (Scope 3); d) Gases included in the calculation; whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all. *Reduction of GHG emissions* includes the following information (GRI, 2018): a) the reduced GHG emissions as a direct result of reduction initiatives, in metric tons of CO_2 equivalent; b) Gases included in the calculation; whether CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all., c) Base year or baseline, including the rationale for choosing it; d) Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3), e) Standards, methodologies, assumptions, and/or calculation tools used. *Emissions of ozone-depleting substances (ODS)* is reported based on the following calculations (GRI, 2018): Production of ODS (in metric tons of CFC-11 (trichlorofluoromethane) equivalent) = ODS produced – ODS destroyed by approved technologies – ODS entirely used as feedstock in the manufacture of other chemicals. *Nitrogen oxides (NO_X), sulfur oxides (SO_X), and other significant air emissions* are reported in kilograms or multiples, for each of the following (GRI, 2018): NO_X, SO_X, Persistent organic pollutants (POP), Volatile organic compounds (VOC), Hazardous air pollutants (HAP), Particulate matter (PM), Other standard categories of air emissions identified in relevant regulations, etc. Released in 2011, the Corporate Value Chain (Scope 3) Accounting and Reporting Standard allows organizations to assess their entire value chain emissions impact and identify where to focus reduction activities. The Scope 3 Standard is the internationally accepted method for organizations to account for 15 categories of value chain emissions, both upstream and downstream of their operations (Greenhouse Gas Protocol, 2011). Based on estimated and measured carbon footprint, managers should identify the potential practical reduction activities that can significantly reduce these GHGs emissions. As an example of good practice for net-zero performance management, Allianz can be highlighted, since this organization uses GRI standards to manage and report GHG emissions and promote net-zero business operations. "In 2020, Allianz reported greenhouse gas emissions equivalent to 384,178 t CO_2, a 31% reduction in their emissions compared to 2019 figures" (Dawson et al., 2022).

Analysis of carbon footprint performance involves the following:
1) Collecting the relevant business activities data to all measurement dimensions of GHGs emissions listed in Table 1.
2) Analyzing the factors of GHGs emission factors and investigating the link between business activities and GHGs emissions.
3) Identifying and analyzing the impact of current and emerging climate risks, such as physical, transitional, and liabilities risk by climate change scenario analysis.

The importance of measurement and disclosure of carbon footprint is reflected in the more effective assessment of climate-related risks, improved decision-making regarding capital investments in net-zero programs and strategies, and enhanced strategic planning in terms of redefining and fine-tuning the net-zero strategy and actions.

3.3. Planning net-zero (carbon footprint) performance and setting emissions reduction targets

Numerous organizations around the world have committed themselves to the net-zero initiatives and have promised to take action on them. These initiatives usually include setting a target aligned with the Paris Agreement's standard of keeping global warming below 2°C (preferred below 1.5°C) compared to preindustrial levels; regularly managing and disclosing the GHG emissions; raising awareness about climate changes; and promoting GHG emission reduction activities. After assessing the carbon emissions of the entire value chain, organizations can formulate corresponding emission targets. In setting emissions reduction targets, organizations should rely on science and good business practices of benchmarked partners. An emissions reduction target is 'science-based' if it is developed in line with the scale of reductions required to keep global warming below 1.5°C from pre-industrial levels, i.e., in accordance with the Paris Agreement. The Science Based Targets initiative (SBTi) is one of the widely accepted climate target initiatives worldwide, which is applied by more than 1,500 organizations representing over US$15.4 trillion in turnover. The SBTi has established an efficient approach for SMEs to set targets for Scope 1 and 2 and take action on Scope 3 (IGD, 2021). An example of successful setting science-based climate targets is PepsiCo. This organization has committed itself to the reduction of direct GHG emissions by 75% and indirect GHG emissions by 40% by 2030 compared to the 2015 baseline, as well as to net-zero emissions by 2040. By the begging of 2021, PepsiCo has accomplished a 23% of the total GHG emissions target of reducing Scope 1 and Scope 2 emissions and 7.9% of the total emissions target of reducing Scope 3 emissions (Qian et al., 2022). Net-zero performance management is applied in many organizations around the world (Table 2).

Table following on the next page

Organization	Planned targets	Realized programs and actions
Orange	Reduce emissions by 30% between 2015 and 2025, having 50% renewable energy in the electric source mix by 2025	• Orange has reduced its carbon emissions by 35% in the past ten years. • As buildings and transport account for 20% of its energy, Orange has switched to 2,540 hybrid and electric cars in its fleet to reduce CO2 emissions by 34%. • Video conferencing with other locations also allows the reduction of carbon emissions by 25%.
Brambles	Net-zero carbon supply chain solutions	• Brambles has realized the Uganda Community Reforestation project and through the community-based tree planting programs has sequestered 8,222 tons of CO2. • Brambles has realized the Mississippi Alluvial Valley Reforestation project by replanting one million hectares of native woodland, sequestering 926 tons of CO2.
Siemens AG	Provide intelligent infrastructure for buildings and decentralized energy systems, automation in the manufacturing, and smart solutions for rail and road transport	• Reduced 54% of their carbon footprint, invested 65 million euros in energy-efficient products, savings of 13 million euros annually, and 70% of electricity consumption on their global sites is done off of renewables.
City Developments Limited (CDL)	Reduce its Scope 1 and 2 GHGs emissions by 63% per m^2 leased area by 2030 from a 2016 base year. Develop net-zero carbon operational assets under direct control by 2030	• Since 1995 are devoted to building low-carbon and resilient buildings by investing in 100% renewable energy and only offsetting as a last resort • More than 80% of its revenue comes from clean and energy-efficient building construction and management.
Lafarge Holcim	Reduce Scope 1 carbon intensity to 475 kg net CO_2/t. cem. (38% reduction vs 1990 baseline) and Scope 2 carbon intensity from purchased electricity to 13 kg of CO_2/t. cem (65% reduction vs 2018 baseline)	• Holcim is piloting more than thirty carbon capture and usage or storage (CCUS) projects in Europe and North America with other multinationals. Overall, these ongoing CCUS projects could save approximately 4 million tons of CO2 per year.
Ford	Achieve targets set by the Paris Agreement by focusing on three areas that account for about 95 percent of its CO2 emissions – vehicle use, supply base, and company facilities	• Up to now, Ford is investing more than $11.5 billion in electric vehicles through 2022, including the forthcoming zero-emission Mustang Mach-E, Transit Commercial, and fully electric F-150 • Ford is on track to power all its manufacturing plants with 100% locally sourced renewable energy by 2035
Hon Hai	Achieve targets net-zero emissions 2025 reduction by 21% compared to 2020	• In 2020, the direct global GHG emissions (Scope 1) were 152,601 tCO2e, the indirect GHG emissions (Scope 2) were: 5,410,149 tCO2e, and the Scope 3 emissions were: 102,140 tCO2e.
Polska Grupa Energetyczna (PGE)	Offer 100% green energy to PGE customers in 2050 and reduce emissions by 85% by 2030	• Currently, 88% of their energy is run off of coal, but they are striving for RES, like wind power by 2030. • Only 5% comes from renewable sources at this point and the rest from natural gas. • In 2020 an off-shore wind project begun, which will generate 550-650 MW on-shore.
Woolworths	Achieve 63% reduction of carbon emissions between 2015 and 2030 and reduce its supply chain waste emissions by 19% by 2030	• More than 120 stores and two distribution centers are generating energy from solar panels. The Group's network of solar panels generated 16,466 MWh in 2020 - equivalent to more than 2,600 Australian households' annual energy consumption. • Replacing traditional lighting with LED has already lowered store energy consumption by 11% on average across 820 sites • Investing in improved refrigeration systems thus reducing carbon emissions and refrigeration leakage to 26% below 2015 levels.
American Airlines	Reach net-zero carbon emissions by 2050 by sourcing 2.5 million GJ of renewable energy by 2025, attaining a 1.5% improvement in average fuel efficiency from 2014 through 2020, or 9% cumulatively over the six years	• In 2019, total emissions (Scopes 1, 2, and 3) were 63.5 million CO2e • Achieved a 0.1% efficiency improvement in 2019, for a 5.3% cumulative improvement during the first five years of the six-year goal • Sourced nearly 200,000 GJs of renewable energy in 2019

Table 2: Ten organizations with net-zero targets
(Source: Net0, 2022)

3.4. Improving carbon footprint performance through implementing net-zero programs and actions for decarbonization

For achieving the net-zero performance targets it is necessary for an organization to develop a comprehensive performance management framework that will include responsibilities across the management levels and functions, implementation programs and actions, as well as necessary resources, and approaches to monitoring, reporting, and verification of delivered programs and actions, and achieved performances. Apart from the full engagement of the management team at all levels, it is important to involve the other key stakeholders, share information and knowledge, build expertise, and raise awareness. For achieving the performance transition toward net-zero targets, an organization could develop, implement and realize the following net-zero programs and actions for decarbonization:

- *Reducing energy consumption and improving energy efficiency* – the first step toward achieving carbon neutrality is to reduce energy consumption. Thus, an organization must determine its energy usage, and work on achieving energy efficiency to achieve net-zero performance.
- *Switching to electric* – the transition to electric heating and electric vehicles.
- *Providing the buildings with strong energy performance ratings* – having ultra-efficient buildings, ideally net-zero buildings, thus setting the foundations for carbon neutrality.
- *Encouraging greener ways of working* – finding ways for reducing environmental impacts.
- *Developing, buying, and using the CCUS technologies* – thus, preventing CO_2 emissions from fossil fuels from entering the atmosphere and reducing carbon footprint.
- *Procuring green energy* – represents an easy way for an organization to become more sustainable, but it should be combined with other programs and actions, as by itself is not enough since does not directly lead to a decrease in energy consumption.

These and other programs and actions can help organization management to avoid, decrease or eliminate GHGs emissions.

3.5. Informing consumers and other key stakeholders about net-zero (carbon footprint) performance

Informing consumers and other key stakeholders about net-zero (carbon footprint) performance, as well as continuously monitoring the reactions of stakeholders related to net-zero actions is very important, as they can have an impact on the short-term and long-term performance of an organization. Consequently, investors, for example, use social criteria and corporate social responsibility (environmental) performance as an increasingly important criteria in the investment projects evaluation. This is supported by the view that the organization's sensitivity to social (environmental) problems has a positive impact on the share price and value for shareholders. The impact on financial performance is assessed through the costs and benefits of the undertaken net-zero actions. Benefits stem from improved relationships with regulators (government institutions) and other stakeholders. Namely, the government will encourage and support the investments of those organizations with better environmental and social performance. Sustainable development actions (net-zero actions) can also lead to cost reduction through the substitution of materials or smaller and ecological packaging, reduced energy use in the production process, reduced consumption of energy sources and materials, reduced manipulation cost, as well as waste reduction. These actions will not only lead to cost minimization but will have a positive effect on the reactions of consumers, who have benefited from those savings or product improvements. These actions also send positive signals to financial analysts and investors who will be more interested in investing money. It can be seen from the above that it is not particularly difficult to identify interdependence and measure these costs and benefits.

4. CONCLUSION

In recent years, human-caused emissions have led to serious environmental problems, causing global warming and threatening the mere existence of the planet. As a result, the governments, business organizations, and industries are putting their hands together in proposing initiatives, programs, and actions toward carbon neutrality. These actions are directed toward the ambitious goal set by Paris Agreement to reach net-zero emissions by 2050 and slow global warming. Business organizations play a crucial role in delivering GHGs emissions reduction targets and achieving net-zero status. Climate changes have posed numerous risks for business organizations in terms of increased expenditures and lost revenues, but at the same time have created new opportunities for those offering 'clean' solutions to meet the needs of various stakeholders. Hence, responsible business organizations are designing and implementing environmental protection strategies with the aim of achieving deep carbon reduction and net-zero performance. The management process in a business organization transitioning toward the net-zero emission business should include the following important points:

- Provide engagement of top management and emphasize the values of organizational culture which should support the environmental protection goals;
- Determine responsible persons from different managerial functions who will manage net-zero reductions programs, according to the economic, ecological, legal, and ethical dimensions of sustainable development (Popović, 2020);
- Detect the values of organizational culture and explore functional areas of corporate social responsibility;
- Analyze the mission (objectives) and investigate the circumstances under which the defined goals and achieved performances are misaligned;
- Investigate the fundamental causes, as well as internal and external factors which have led to the deviations in achieved performances compared to defined ones;
- Collect significant information for the industry, conduct benchmarking studies, and gather information on the control standards;
- Interview relevant internal and external stakeholders to obtain relevant information for the transition to net-zero emissions business;
- Compare internal data and external perceptions of stakeholders to disclose a sustainability report.

In the net-zero performance management process, sustainability managers and other managers should understand the interdependence between the business activities and the GHGs emissions caused by those activities. This is a prerequisite for the first and other phases of this process on the path toward a successful transition to a net-zero business. These managers must possess hybrid management and professional capabilities for the successful implementation of defined sustainable development actions, in order to efficiently respond to day-to-day responsibilities in process of net-zero performance management (Domanović et al, 2020).

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EMPLOYEES` SATISFACTION IN THE CONTEXT OF REMOTE WORK

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ABSTRACT

Although last two decades have increased the popularity of the remote work and flexible working hours, many employees and managers still need time to get accustomed to this trend. Due to the threat of COVID-19 closing the offices and spreading the remote work, it is essential to research the satisfaction of the employees regarding this situation as well as the readiness of the employers for the new conditions. The pandemic of COVID-19 resulted in turmoil of labour market and created new challenges in human resource management. Considering the staff a core value of company's performance and taking into account that a satisfied employee is more than just a "kept employee", performing the duties in more productive way and ensuring higher quality, being loyal and becoming ambassador of the brand, the satisfaction of employees and their well-being must be the employer's priority in this time of global uncertainty. To some extent, the pandemic only accelerated existing trends toward more flexible work arrangements that include at least some remote work. Millennials, in particular, value the freedom to juggle work and life as they see fit. Remote work can cut down on the cost and lost time of long commutes. And it can open up opportunities for those who might. For companies that prefer a traditional office set-up, the flexibility of a remote option will continue to be important for some time. Uncertainty about schools reopening raises child-care questions for working parents. Employees with medically vulnerable family members have added responsibilities and worries. Some employees may not feel safe returning to work. The aim of the research is to find out the degree of satisfaction of the employees with their working conditions in the context of remote work, to come to conclusions and provide proposals for the improvement of employees' satisfaction. In order to achieve the goal, the following tasks are to be completed: 1) to provide the explanation of remote work and staff satisfaction; 2) to describe secondary data from a conducted survey by KANTAR; 3) to conclude about staff satisfaction in the context of remote work.

Keywords: *COVID-19, employee satisfaction, remote work*

1. INTRODUCTION

Nowadays, in the dynamically changing circumstances, the staff is the main value of the organization that guarantees its competitiveness and sustainable development. The understanding and meeting the current and future expectations and needs of the employees, is essential for the business success and welfare of the company. The motivation and satisfaction of the employees are the most important features of human resources of any company, and they must be taken into account not only in the contexts of organizational culture and identity, but also in terms of implementing any activities and quality control. A qualitative evaluation of staff satisfaction helps the management to take balanced and justified decisions that require reliable, timely and comprehensive information on condition of work resources in the company. Remote work is a work requiring the employer and the employee to agree on work tasks, achievable results and reporting order, work organization and communication channels providing the availability of the employee during the working hours. Remote working in public service requires the remote access to work e-mail, the phone must be forwarded to mobile phone, ensuring the reachability, to perform their daily duties the employees need proper technical support and access to necessary IT systems.

2. EMPLOYEES` SATISFACTION AND REMOTE WORK

The disagreement around the performance of remote employees has received wide attention in the media as some argue that working from home make employees more productive due to fewer office distractions, while others argue that working from home is not the best environment because it allows for more home distractions (Fonner & Roloff, 2010). For instance, Marissa Mayer, former CEO of Yahoo, ended the remote work policy for all employees in 2013 and stated, "to become the absolute best place to work, communication and collaboration will be important, so we need to be working side-by-side" (Pepitone, 2013). However, according to a Gallup report on the State American Workplace, "people who work remotely are more engaged, enthusiastic, and committed to their work — only if they work outside the office 20% of the time or less" (Gallup, 2017). Therefore, it is paramount that if organizations want to remain profitable and stay competitive in a growing technological society, better understanding of the consequences of remote work is vital for the future of the workplace. Allen, Renn, & Griffeth, 2003; Allen, Renn & Griffeth, (2003) pointed out that some resources of literature on remote work base on problematic assumptions regarding the impact of remote work on the individual and organizational level. These assumptions are: employees work remotely full-time, employees work remotely on a permanent basis, and remote work impacts the organization positively (i.e., cost savings) (Bailey & Kurland, 2002). During the last 20 years, analysing the consequences of remote work researchers have found inconsistent results with employee job satisfaction, job performance, and work-family conflict (Gajendran & Harrison, 2007; Golden, 2006). Researchers have expressed their concern that current managers and researchers in the field may not be able to rely on literature for guidance on how remote work affects individual telecommuters. However, recently more researchers are studying the potential positive and negative consequences of remote work, due to changing work dynamics via mobile work (Ferguson et al., 2016). Nilles (1994) defines telework as "working outside the conventional workplace and communicating with by way of telecommunications or computer-based technology" (Bailey & Kurland, 2002). Similarly, Ellison, N. B. (2004). (1997) defines telework as a "work arrangement in which employees perform their regular work at a site other than the ordinary workplace, supported by technological connections" (Fonner & Roloff, 2010). Nowadays, the idea of mobile work or work (defined as "the frequency of using a smartphone or a tablet with Internet access to engage in work tasks during family time") has emerged as a common form of remote work due to the opportunity to connect with anyone via internet on one's mobile device, even outside working hours (Ferguson et al., 2016). Gajendran and Harrison (2007) pointed out that, the remote work term distributed is defined as the "arrangement that allows employees and their task to be shared across settings away from a central place of business or physical organizational location". The authors state that the best-known type of distributed work is telecommuting; however, this work arrangement is also considered to be remote work. This work arrangement was originally defined as working from a remote location away from a standard office or work site and was first coined by Blaze while stuck in traffic in LA (Blaze, 2021). Even though the terms teleworking and telecommuting are used interchangeably, some still argue there are differences between the two terms. For example, Ellison (2004) argue that telework is a broader concept and has four dimensions (work location, information technology, time distribution, and diversity of employment). Telecommuting is more specific and means completing work at a remote location in order to decrease commuting time (Ellison, 2004). Overall, organizations now prefer to use the term "working remotely" or "working from home" instead of telecommuting/teleworking because it sounds more modern (Parris, 2017). Parris (2017) also added that there is no consistency in terminology "Since the idea of telecommuting has been around for decades, thus new words and phrases come to replace what is, in theory, a not-so-new workplace concept" (Parris, 2017).

This author concluded that all five terms (remote working, working remotely, working from home, teleworking, and telecommuting) are comparatively synonymous, therefore it is best not to use one term exclusively. For this reason, this study will use the term “remote work” and will be based on literature that uses teleworking, telecommuting, or remote working as their choice in terminology, consistent with the proposed definition of telework by Gildner, (2019) and Priestley, (2021). Ramonyai, (2022) defined job satisfaction as “a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" . Overall, the relationship between remote work and job satisfaction derives from the assumption that remote work allows workers more flexibility and more autonomy in how their work is achieved, which allows the employee to meet the demands of their job and their own personal (life and family) demands (Virick, DaSilva, & Arrington, 2010). Golden and Veiga (2005) examined the relationship between remote work and job satisfaction among 321 professional-level employees. The researchers collected and measured remote work in the number of hours they spent working remotely per week (telecommuting intensity). The researchers were the first to posit a curvilinear relationship (inverted u-shaped), such that employees would experience higher levels of job satisfaction at lower levels of remote work and lower levels of job satisfaction at higher levels of remote work. Based on their findings, the researchers found support for a curvilinear relationship. The researchers found that the relationship between working remotely and job satisfaction subsided, and the employees’ job satisfaction levels decreased at higher levels of remote work. In other words, this finding’s main implication is that employees are able to socially connect in person with their co-workers and managers, while also having the flexibility of meeting their personal needs when they work remotely only several days out of the week. Alternatively, when employees work the majority of their work week remotely, they experience more isolation due to less social interaction with their colleagues at work, which leads to a decline in their job satisfaction levels. Allen, Golden, and Shockley (2015) found in a recent meta-analysis that remote work was positively associated with job satisfaction, however, the correlation was small ($r = 0.09$). In addition, the authors found that the extent of telecommuting did not relate equally to job satisfaction, which explains why the association between remote work and job satisfaction is curvilinear. In particular, the researchers found that as remote work increased, so did the employees’ levels of job satisfaction, but only up to a point (15.1 hours per week). After that, as remote work continued to increase, employees’ levels of job satisfaction started to decrease. Allen et al. (2015) posited that this curvilinear relationship may be due to the lack of social interaction with co-workers and the increased perception of isolation, which telecommuters may experience when teleworking too frequently during the week. These potential drawbacks may counterbalance the benefits of working remotely which may impact employees’ overall job satisfaction. Based on this theory, the authors posited that telecommuting had five individual outcomes: job satisfaction, performance, turnover intention, role stress, and perceived career prospects and these outcomes are mediated by perceived autonomy, work-family conflict, and relationship quality with supervisor and co-workers. After analysing 46 studies, which included 12,883 employees in natural settings, the authors found that telecommuting had small, however, beneficial effects on the employee’s proximal outcomes, such that employees perceive higher autonomy, less work-family conflict, and higher relationship quality with supervisors. Gajendran and Harrison (2007) also found that distal outcomes, such as performance, job satisfaction, turnover intent, and role stress were partially mediated by perception of autonomy. Bailey, & Kurland, (2002). (2010) examined the relationship between remote work and job satisfaction in relation to work-life conflict. More specifically, the researchers examined the degree to which remote work affected job satisfaction by considering the following potential mediators: work-life conflict, stressful situations such as meetings or interruptions, organizational politics and information exchange.

After studying 89 teleworkers and 103 office-based employees, the researchers found that telecommuters were more satisfied with their jobs than office-based employees and found work-life conflict to be a mediator of the relationship between remote work and job satisfaction. In this study, telecommuters were defined as employees who had an agreement with their employer to regularly work at least three days a week from a location other than the office (Bailey, & Kurland, N. 2002). Overall, the researchers found that telecommuters achieved important benefits from their arrangement at work and found that having less work-life conflict was most instrumental to their overall satisfaction. The implications of their results are that working remotely may ease conflicting situations with work and life, which in turn may provide an overall more productive and satisfying work environment and stated, "… spending less than 50% of the week in the collocated office affords more flexibility and aids in the balance of work and personal roles, which teleworks find satisfying" (Bailey, & Kurland, 2002). Virick et al. (2010) replicated the findings of a curvilinear relationship between extent of telecommuting, job satisfaction, and life satisfaction. The sample consisted of 575 exempt employees (only 85 indicated as telecommuters) and measured the extent of telecommuting in days versus hours like Golden and Veiga (2005) did. The researchers found that performance-outcome orientation, defined as the "degree to which 16 objective criteria are used in employee evaluation," moderated the curvilinear relation between extent of telecommuting and job satisfaction (Virick et al., 2010). In other words, the researchers found that when performance outcome orientation was high, job satisfaction stayed the same regardless of the frequency of telecommuting. However, when there was low performance outcome orientation, job satisfaction was highest when there were moderate levels of telecommuting, not at low levels as predicted. The researchers also found that worker type, defined as the workers' levels of work drive and work enjoyment (i.e. workaholic has high work drive and low levels of work enjoyment), moderated the curvilinear relation between extent of telecommuting and life satisfaction, such that workaholic employees experienced lower life satisfaction when they engaged in moderate levels of telecommuting, while other employees experienced the opposite. Particularly, other employees experienced higher life satisfaction when telecommuting was moderate. However, the main implications of the study are that remote workers are more satisfied with their lives when they work remotely at "moderate levels" such as several days a week, which supports past literature on this topic (Allen et al., 2015; Golden & Veiga, 2005; Golden, 2006). Virick et al. (2010) did not look at the extent of telecommuting (telecommuting intensity) as a potential mediator between the remote work and job satisfaction relationship. Therefore, the current study contributes to the limited research on remote work by examining this relationship more extensively. In the survey of Gajendran., Harrison, & Delaney-Klinger, (2014), the researchers concluded that working remotely was mainly a good way to work because they found that working remotely had beneficial effects on distal outcomes; increase in job satisfaction, lower 17 turnover intentions and lower role stress, along with higher supervisor evaluations on job performance (Gajendran, Harrison., & Delaney-Klinger, (2014). Similarly, Golden, & Veiga, (2005) stated "when the extent of telecommuting is minimal, telecommuters are able to minimize reliance upon electronic communication mediums, and therefore minimize isolation and frustration while enjoying the benefit of increased feelings of autonomy and enhance overall job satisfaction". Therefore, the relationship between remote work and job satisfaction may be explained by the influence of telecommuting intensity as a mediator, suggesting that those who engage in remote work, do so more frequently, which enhances job satisfaction. Kurkowski, (2021).

3. SURVEY OF EMPLOYEES` SATISFACTION

The pandemic of COVID-19 keeps causing unprecedented problems in economics and labour market. In order to reduce the risk of spreading the virus, all countries in the world have taken measures in accordance with recommendations by World Health Organization (WHO): physical distancing, restrictions of mobility, closure of insignificant companies and organizations to ensure the isolation of entire cities in different regions of the world. When the dynamic of epidemiological situation changed, so did the measures of fight against pandemic carried out by the governmental agencies (OECD Employment Outlook 2021). One of the most important measures to prevent the spreading of COVID-19 is the reduction of physical contacts. According to the data of International Labour Organization (ILO) about 68 per cent of the employees of the world, including 81 per cent of employers, currently live in the countries with guidelines or requirements of closure of the businesses in force. The employers must learn to live and survive in new conditions, elaborating emergency action plans aimed to react to new requirements immediately. Many companies study the opportunity to change to remote working as interim or alternative organization of work (ILO, 2020). Remote work is the work organization, when the employee performs the most important functions related to his job staying at home and using information and communication technologies (ICT). In the context of COVID-19 pandemic the remote work means only the work from home as interim, alternative work organization model. It means that both employers and employees have common obligations, including obligations to ensure uninterrupted activity and employment (OECD Employment Outlook 2021). Nowadays, we can claim that the precedent implemented in labour markets of many countries during the time of rigid restrictions, has created a stable fundament of new trends, namely the distribution of remote working practice in the country in question and flexible development of work organization forms. Due to the expansion of remote work in comparison to previous situation, the forecasted increase of remote working concerns not only consulting, recruitment, finance, insurance etc., but also trade, education, culture, civil services and other (Madriz, 2021). There are several researches carried out in relation to employees' satisfaction about remote work. The company Kantar carried out a survey of 800 employees via Internet from 11th to 14th May, 2021. The research by Kantar is representative for the total of Latvian employees. The selection cohort is made basing on random selection, and within their procedures Kantar rigidly follows ESOMAR recommendations on selection and organizing criteria applied for Internet surveys. Kantar is a leading company in research and consulting in Latvia. It is one of the larges research companies in the word with experts working in more than 90 countries. Kantar group is one of the leading data, conclusion and consulting companies in the world. In Latvia, Kantar is a research and survey company with more than 25 years of experience in market, public opinion and media research, which provides recommendations for business growth of the customers. Within the framework of the aforementioned research, several questions in relation to remote work and working environment have been asked, covering also the question about employees' satisfaction with their current job, the impact of Covid-19 pandemic to the satisfaction with their job and the impact of new working conditions to the emotional well-being of the employee. Last year has caused the turmoil in labour market, bringing in new challenges also for human resource management. The pandemic of COVID 19 resulted in turmoil of labour market and created new challenges in human resource management. Considering the staff a core value of company's performance and taking into account that a satisfied employee is more than just a "kept employee", performing the duties in more productive way and ensuring higher quality, being loyal and becoming ambassador of the brand, the satisfaction of employees and their well-being must be the employer's priority in this time of global uncertainty. Most of the employees indicated that in general they are satisfied with their current jobs. The research discovered that the largest part (77%) of the employees are satisfied with their current jobs, including one fifth (22%), who said they are even very satisfied (See Fig.1). No statistically important difference was detected in comparison to 2020.

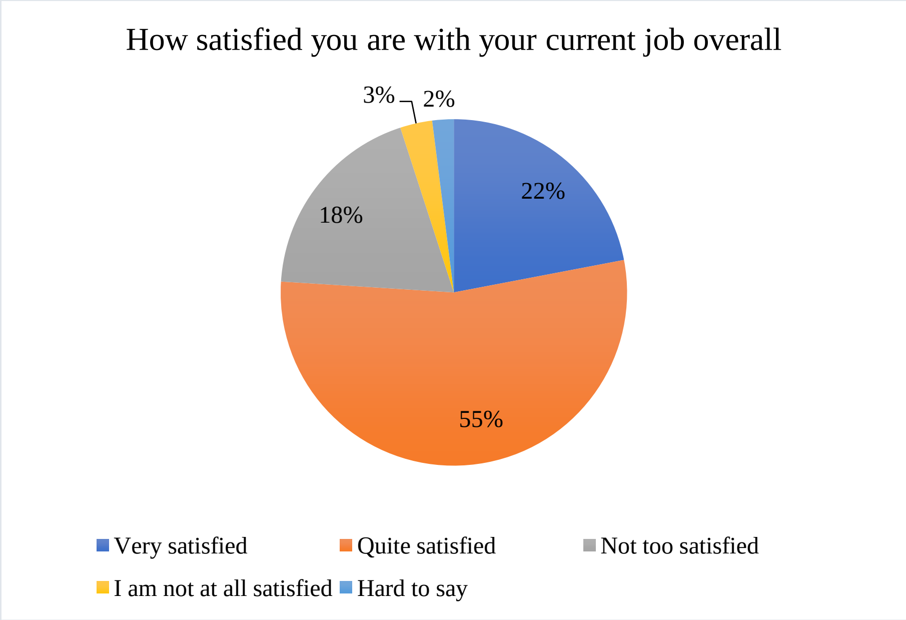

Figure 1: Answers of the respondents regarding their satisfaction with their current job in general
Base N=800
(Source: Kantar, 2021, May)

Data dynamics show that the overall satisfaction of the employees with their current jobs has not changed during the last year, but in two years, comparing with the pre-pandemic period, the number of "very satisfied" employees has significantly increased (from 16% to 22%), which is the highest rate since 2016. Ms Signe Kanejeva, the expert of staff-related research at Kantar, tells: "The negative background of pandemic and circumstances of crisis (different restrictions and aspects causing psycho-emotional effects, such as isolation, fear etc.) "emphasize" and makes topical the true value of work: people tend to discover their daily job in different light, many of them sees it as interesting and exciting, true vocation, which gives feeling of happiness, fulfilment and satisfaction, they appreciate the work that is secure and stable." The results of the present research show that average satisfaction with the current job applies to top and middle level managers, employees with higher personal income (more than 1001 EUR per month), those, who evaluate their workload as adequate and whose employer ensures the possibility to balance between work and family life as well as people living close to Riga. Lower satisfaction with the current job, in its turn, applies to qualified and non-qualified workers, people employed in construction, workers with lower personal income (until 500 EUR), those, who evaluate their workload as excessive and indicate that the employer does not ensure the possibility to balance between work and family life. Clearly, the current situation adding several governmental restrictions and following changes in work routines in the companies and institutions, is challenging for both sides – employers and employees. Data show that overall one fourth part (24%) of the employees in the circumstances of pandemic, feel changes in working routines due to full or partial remote work. New circumstances and remote work has increased the satisfaction with the current job. Evaluating the impact of new work circumstances to the satisfaction of the employees, we can conclude that even a half of all employees (49%) are more satisfied with their work under the new circumstances, and the proportion of satisfied employees has increased significantly, meanwhile one third (32%) the changes have not brought the increase of satisfaction. The satisfaction rate is statistically significantly higher in comparison to the same rate of 2020.

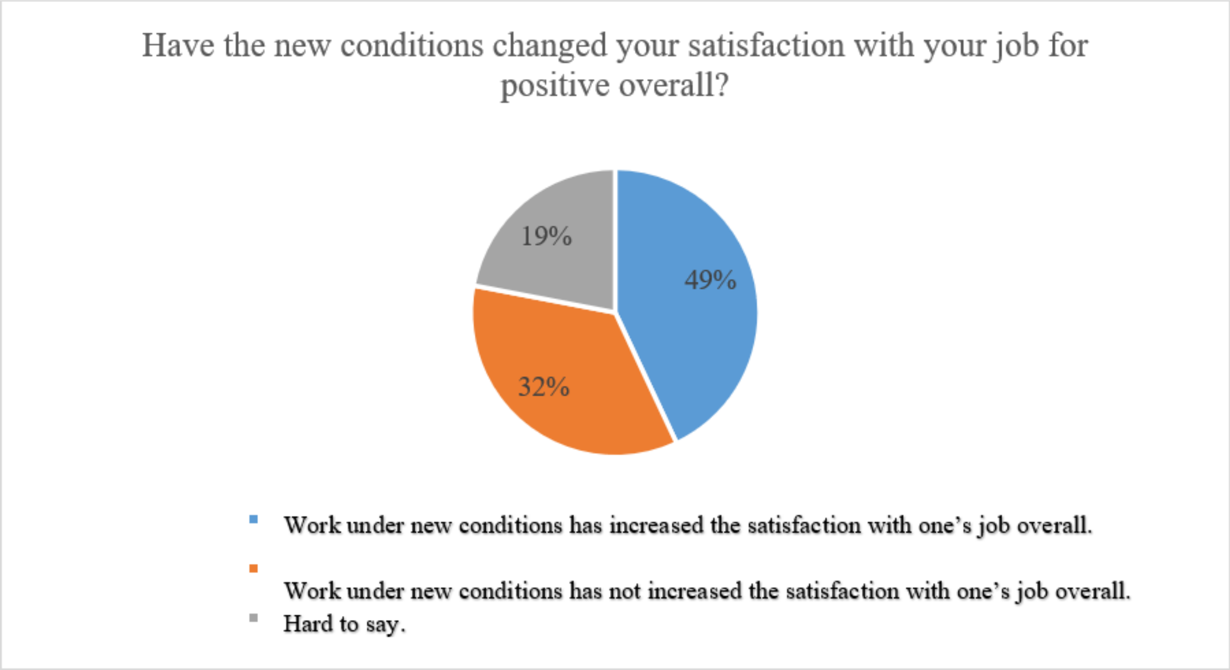

Figure 2: Answers of the respondents to the question, whether the work under new conditions has increased the satisfaction with one's job overall
Base: all employees, n=800
(Source: Kantar, 2021, May)

In surveys, the people, who indicated that the work under new conditions has increased their satisfaction with their work, significantly more worked in information and communications; those, who were overall satisfied with their work and workload, those, whose employer ensured the balance between work and family life and those, who have changed their working regime to full time remote work, which lead the management teams of the companies to the question, whether this system should be kept for some part of employees even after the restrictions are cancelled. Comparatively less satisfied with the work under the new conditions, in their turn, were people working in education, employees, who haven't been overall satisfied with their jobs previously and evaluated their workload as too high and whose employers didn't ensure the balance between work and family life. It should be pointed out that people working in education is one of those groups of employees that faced significant changes and challenges in these unprecedented circumstances, when all educational institutions were forced to implement remote learning, and this situation produced negative impact to overall level of employees' satisfaction. The work under new circumstances has "double effect" on emotional well-being of the employees. The research discovered that a half (50%) of the employees feel the impact of new conditions to the emotional health, but slightly more less than a half (43%) no impact to the emotional well-being was observed. Typically, lower impact on emotional health was observed by older employees (45–65 years old), meanwhile the younger employees (18–34 years old) mention the emotional impact of new circumstances more frequently. 2/3 (62%) of those employees, whose emotional well-being was impacted by the work under new conditions, the impact is reported overall negative (or 31% of all employees), but slightly more than every fourth respondent (28%, or 14% of all employees) report the impact to their emotional well-being overall positive. Positive impact to the emotional well-being caused by the work under new conditions is reported more often by top and middle level managers, experts, employees with higher personal income (1000 EUR and more), employees, who have fully switched to remote work and those, whose salary has increased during the last year.

Negative impact to the emotional well-being caused by the work under new conditions, in its turn, is reported mostly by people working in educational system, employees with lower personal income (until 500 EUR), those, who are not overall satisfied with their jobs, see their workload too high, whose employers do not ensure possibilities to balance work and family life, and who tend to work in presence in their offices during the pandemic. Signe Kanejeva, the expert of human resource research says: "The specifics of each company and institution differ. Nevertheless, a satisfied employee is and will always be the main resource of the company. Therefore, every management team should ask themselves about the satisfaction of the employees, about the main factors that produce impact on satisfaction and how to act as efficiently as possible under current market circumstances regarding recruitment, loyalty and motivation?" (*Kantar, 2021).*

4. CONCLUSION

1) The majority of the employees is overall satisfied with the current job. New working conditions and remote work has increased the satisfaction with current job.
2) The specifics of the companies and needs of the employees tend to differ, but a satisfied employee is and will always be one of the most important resources of the company. Therefore, each management team should be able to find answers regarding the employees' satisfaction, most important factors that influence the satisfaction in the company and the most efficient action possible under current market conditions in the field of employees' loyalty.
3) Under the conditions of remote work, it is recommendable to involve more actively the top management of the company in all internal and external communication, strengthening in current and potential employees the idea of management's openness and honesty, as well as ensure active communication with the employees on all issues they might be interested in, thus increasing the level of employees' satisfaction.
4) The managers of the companies must pay attention to the efficiency of working process in remote regime, involve employees as professionals in solution seeking, listening to them and collecting their opinion as well as communicate on ideas, proposals, decisions taken etc. in order to produce positive impact to employees' satisfaction.
5) Elaborating individual development and achievement plans for employees working remotely, would increase the involvement of the employees, strengthening their loyalty and dedication to aims and development of the company, subsequently improving the motivation rate and employees' satisfaction in general.

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COMPARISON OF INTANGIBLE FACTORS OF EMPLOYEE SATISFACTION IN PRIVATE AND STATE-OWNED ENTERPRISES IN THE REPUBLIC OF CROATIA WITH MATERIAL FACTORS OF EMPLOYEE SATISFACTION IN WORKPLACES - HIGH SALARY

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ABSTRACT

The aim of this paper is to investigate whether employees choose intangible factors of job satisfaction or material factor high salary, then which factor of job satisfaction is the most important, and a comparison of different factors of employee satisfaction according to the assessed importance by the respondents (employees). The survey was conducted using the online survey method, on a sample of 233 employees in state and private enterprises in the Republic of Croatia, during February 2022, with the aim of examining employees' attitudes about intangible job satisfaction factors and material job satisfaction factors - high salary. The data obtained by the survey method are statistically analysed in the SPSS program and various factors of worker satisfaction in the high-paid workplace are compared. The results of the research showed that non-material factors of job satisfaction are more important to employees than high salaries. The most important intangible factor of worker satisfaction in the workplace is a good work atmosphere. When employees choose a high salary and some intangible factor, then they prefer that intangible factor, the leading of which is a good work atmosphere. Employees choose differently when they have the ability to rank intangible job satisfaction factors and high pay as a material job satisfaction factor. Then their first choice is still a good work atmosphere, then a high salary and only then all the other intangible factors.

Keywords: *high salary, good work atmosphere, correct behaviour of superiors and work colleagues, low stress, workplace safety, the possibility of advancement*

1. INTRODUCTION

Employees spend a lot of time in the workplace during their working life, 1/3 or more of one working day and so on until retirement. The goal of every employer should be the satisfaction of workers in their workplace. Only satisfied employees will have a synergy effect on the organization in which they work and their work will affect the achievement of business goals and a positive business result of the enterprise in which they work. There are many factors that affect employee satisfaction in the workplace, but this paper will explore which are the most important factors that affect employee satisfaction in the workplace. Factors that affect worker satisfaction in the workplace are salary, good work atmosphere in the organization, correct behaviour of superiors, correct behaviour of work colleagues, low levels of stress in the workplace, the possibility of advancement and workplace safety. This paper analyses the importance of each of the listed factors of employee satisfaction from the point of view of employees, regardless of whether they work in a state or private enterprise.

Salary is the first factor that should be in line with the qualifications of employees that serve to meet basic living needs, needs for food, clothing, goods, needs for education, movables and real estate and all other living needs of individuals. The salary of a worker is sometimes not in line with the completed education. Nowadays, in addition to completed formal education, it is desirable that employees attend various seminars organized by the employer, research professional literature, attend various workshops and the like, to improve employee skills and increase employee competitiveness in the labour market. For employees to fulfil their tasks in their jobs, not only formal education is enough, but also non-formal education and work experience. In addition to the salary, a good work atmosphere in the workplace is certainly important, because through synergy, workers achieve better business results and achieve the set business goals of the organization. A good working atmosphere is created by managers and employees alike. The ability to advance in the company is a very important factor that affects employee satisfaction. Some workers do not have the opportunity to be promoted in the workplace and certainly the inability to advance increases the level of dissatisfaction of workers in the workplace. Respect for workers by their superiors is a very important factor, because if workers do not feel respected by their superiors, the lack of commitment of workers to perform tasks and achieve business goals of the company may be lacking. Conversely, employees need to respect their superiors. Stress is a big problem that both employees and managers face. When there is a large amount of stress and a large amount of work in business organizations, then there are various problems, misunderstandings between colleagues, misunderstandings between workers and managers, reduced efficiency of workers in performing business tasks and conflicts in the workplace. All of the above is reflected in the achievement of set business goals and the realization of planned profits. The aim of this paper is to investigate which intangible factors are most important to employees, whether their salary is more important as a material factor or intangible factors of employee satisfaction in their jobs and which are the factors of employee dissatisfaction in their workplace.

2. LITERATURE REVIEW

Business organizations are not just a place where employees earn their salary. Interpersonal relationships, emotions, challenges and achievements of employees are hidden in business organizations. Managers are responsible for the implementation of organizational goals in enterprises, but also to create a good work atmosphere and intangible factors of employee satisfaction in the workplace. Delbridge and Sallaz (2015) define organizations as psychological and material space, as hierarchical places of control and power, as a set of actors working together to accomplish a job, and as a source of new ideas, innovation, and creativity. Sikavica et al (2008) point out that partnership and full participation in organizations can be achieved by applying the following guidelines: involve everyone in everything, use self-governing teams, highlight achievements and recognize contributions, spend a lot of time getting people, train and educate people, provide incentives pay for everyone, provide job security, simplify / reduce the structure, reformulate the role of middle management and eliminate bureaucratic rules and degrading conditions. As Tung (2016) points out, the complex and dynamic environment in which enterprises operate make enterprises develop strategies in which talent management becomes one of the tools needed to achieve organizational goals. Effective talent reward policies need to be established in enterprises, which can contribute to sustainability and create economic, social and financial value of enterprises (Mandhanya, 2016). Managers in enterprises need to pay great attention to developing the talents of their employees, because employees are the basic driver of all activities in the enterprise. Employees should be satisfied employees, in order to contribute to the enterprise in which they work and the goal of this scientific work is to explore what are the factors of employee satisfaction and put in a relationship factor to find out which factors are more important to employees, is it high salary or for example a good working atmosphere. Teamwork is key to organizational success, as Becker et al (2013). The amount of employee salary is not related to workplace satisfaction, nor to commitment to the organization (Gaertner, 1999). According to Bosilj Vukšić (2008), every process has its purpose, its beginning and end, and the improvement of the process is inevitable. Managers at all levels in enterprises are responsible for all business processes, for the execution of all managerial functions, and certainly one of the managerial functions is human resources management (HRM). Bahtijarević-Šiber (1999) emphasizes the importance of human resources management functions in organizations. She emphasizes that the function of human resources management should provide for quality of people, educate and motivate them and in that way they will achieve high results and contribute to the achievement of organizational goals. Without caring for employees, neither the best plans nor the organization have any effect. The purpose of this paper is to investigate what are the factors of employee satisfaction in the enterprise in which they work and whether their salary is crucial in the satisfaction they feel or is still a good working atmosphere, as shown by the results of the research. According to Bailey (2016), ensuring a high level of employee engagement has become a dominant task for HR practitioners globally. Kanter (1984) points out that even the smallest individual effort of an employee can trigger major changes in enterprises, when all the effort and contribution of all employees in the enterprise is cumulatively added up. Hansen and Leuty (2012) argue that employees expect greater meaning in their work and flexibility in their work. According to Turkalj and Miklošević (2017), the delegation of jobs by managers to employees affects employee motivation, but for managers to delegate jobs to employees, they must have confidence in employees. Managers should constantly take care of the most important resource in companies, employees and should ensure a sense of employee satisfaction in the workplace, to ensure the business success of the company they lead. Kulaš and Knežević (2011) point out that today's enterprises have realized that the departure of employees leaves the intellectual capital in which they invested, and managers need to convince them that they have positive reasons to stay in enterprises. The importance of human capital is also emphasized by the author Duspara (2016), capital is the basis for the existence of enterprises, but in the global economy the most important capital is human resources, and enterprises that do not have competencies for successful human resource management will not have sustainable development. Authors Cobović et al (2015) emphasize that project managers should also have leadership and organizational skills. Teamwork contributes to the efficiency of the organization in enterprises, the dissemination of new ideas and greater synergy within the enterprise (Stanić et al, 2017). Managers are the main and responsible for managing teams in enterprises, strengthening team spirit among all team members and encouraging the development of employee skills. When managers care about the feelings of their employees and that the employee's salary is in line with their qualifications and the commitment of employees in the workplace, they will be more satisfied in their jobs. When there is a good working atmosphere in the enterprise, which is created by the very top of the hierarchy, ie by the manager, then the enterprise will have a spirit of optimism and faith in achieving organizational goals. Employees will then not be seen as a cost, but as an investment that will pay off in the long run in the way each employee contributes to the enterprise's positive business success and the enterprise's representative image towards customers and the public. During the COVID-19 pandemic, managers were faced with numerous changes in the performance of their managerial functions (Miklošević et al, 2022), and especially in the function of planning and organizing, because it is more difficult to predict uncertain business events. Managers and employees have to adapt to more organizationally demanding working conditions, and employees need the support of managers more than ever, and unfortunately teamwork has been greatly reduced in companies. Inspirational leadership behaviour can evoke employee commitment (Avolio et al, 2004).

By their example, managers influence the behaviour of employees in organizations, and if employees see that the manager is trying and committed, then employees will try, or copy the behaviour of their superiors. "Furthermore, the prevalence of altruism suggests that meaningful work may be an important driver of commitment in contemporary work settings" (Klein et al, 2020, p. 15). Ma et al (2016) in their study found that employees working for multinational enterprises reported a more positive perception of their employer's staffing practices. The employer's concern for employees should never stop, because if the employer does not care about having satisfied employees, employees will not care that the enterprise in which they work progresses and grows. Malik (2006) points out that good management is needed by enterprises in developed and underdeveloped countries and that management is the most important function in society. As the analysis of the authors Markoulli et al (2017) shows, the field of HRM has experienced a significant increase in the number of articles produced each year. Mulyani et al (2019) found that leadership has a partially positive and significant effect on employee motivation. The knowledge base and organizational form are related to work commitment, effort and job satisfaction of employees. (May et al, 2002). All organizations exist to meet the requirements of their clients and thus make their profit. Without the engagement of all employees, there will be no positive business success in organizations and satisfaction of end customers and clients. That affective commitment to clients improves the quality of service was found by Vandenberghe et al. in their study (2007). Employee knowledge is extremely important in the implementation of new products, development of existing products and gaining a competitive advantage of the enterprise. Satisfied workers will work harder and harder at their workplace than dissatisfied workers and will use their knowledge to a greater extent to achieve the success of the enterprise in which they work. Wickert and Herschel (2001) note that the absence of employees in organizations due to illness causes enterprises to have inaccessibility of employee knowledge. During the COVID-19 pandemic, there was a large increase in sick leave of companies, which had a negative impact on the company's overall business. The authors Miklošević et al (2022) concluded that it is more difficult for managers to perform managerial functions during the COVID-19 pandemic and that there is a large increase in sick leave, which negatively affects managerial functions by planning and organizing all business activities in enterprises. Yli-Renko et al. (2001) point out that young enterprises use the acquired knowledge for competitive advantage. Vukajlović et al (2012) point out that the motivation of employees in enterprises arises not only from material factors, but also from a wide range of intangible factors. Motivated employees achieve higher work performance, and thus the overall performance of the organization grows (Brnad et al, 2016).

3. RESEARCH METHODOLOGY

In this paper, the main research problem relates to the following:

1) Will employees prefer to work for a higher salary with a worse working atmosphere or for a lower salary with a good working atmosphere?
2) Which intangible factor of employee satisfaction in their workplace is most important to them?

According to the results of the research, the research question will be answered as to how much the workers care about the high salary, and how much about the good working atmosphere, and whether they would agree to work for a higher salary in a disturbed working atmosphere. There are many reasons for worker satisfaction in the workplace. The level of salary is certainly one of the satisfaction factors that will be investigated, as well as many other factors in addition to the above, such as correct superiors, correct work colleagues, workplace stress levels and workplace safety according to employee perception.

In business organizations, there are various factors that affect the satisfaction of workers in the workplace. Are they material factors, intangible factors, or both? Certainly, employees work for a salary which is a fundamental factor in worker satisfaction in the workplace. However, in addition to the salary, the work atmosphere in the workplace is also very important. The aim of this paper is to find out what are the most important factors of employee satisfaction in the workplace, whether employees would work for a higher salary in a bad work atmosphere or the most important thing is a good work atmosphere in the workplace with a lower salary.
Three hypotheses have been set:

- H1: *Employees will choose to work for a lower wage in a good work atmosphere rather than for a higher wage in a bad work atmosphere*
- H2: *The leading intangible factor of worker satisfaction in their workplaces is a good work atmosphere*
- H3: *When employees have the option to choose between several intangible factors of worker satisfaction in the workplace and the material factor of worker satisfaction in the workplace - high salary, they will give preference to high salary*

After the analysis of the conducted research, the set hypotheses will be accepted or rejected, and the conclusion of the research and recommendations for employers on the most important factors of employee satisfaction in the workplace will be made. Employee satisfaction in the workplace is very important and there are various factors that affect the same. Salary is very important, it satisfies all the needs of life. Employees also need to belong, to be respected in the workplace, for the possibility of advancement, a workplace safety etc. The research was conducted by the method of online survey questionnaire, random selection. The survey questionnaire is completely anonymous. 233 employees in state and private companies in the Republic of Croatia responded to the questionnaire. Factors of employee satisfaction at their workplace that are examined in the survey questionnaire are shown in Table 1.

FACTORS OF EMPLOYEE SATISFACTION IN THE WORKPLACE
1. High salary
2. Good working atmosphere
3. Correct superiors
4. Correct work colleagues
5. Stress level
6. Possibility of advancement
7. Workplace safety

Table 1: Factors of employee workplace satisfaction covered by the survey
(Source: author's work according to research results)

4. RESEARCH RESULTS

The survey on employee satisfaction factors in the workplace was conducted in February 2022, using the online survey questionnaire on a sample of 233 employees (respondents) in the Republic of Croatia (N = 233, without region restrictions). Only employees were examined, regardless of the number of years of age and education. Questions were asked in which the respondent must decide whether to choose a higher salary at his workplace or a good work atmosphere, then whether to choose a higher salary or correct superiors and correct work colleagues, whether to choose a higher salary or workplace safety and whether to choose a higher salary or opportunity of advancement. Respondents were also asked to choose a higher salary or a lower level of stress. The data obtained by the questionnaire method were processed in the SPSS program.

The aim of the research is to get answers to the following questions:
- Question No. 1: *Will employees give preference to higher pay or intangible factors of employee workplace satisfaction?*
- Question No. 2: *Which intangible factor is most important to employees?*
- Question No. 3: *Will employees choose to work in a bad work atmosphere for a higher salary or in a good work atmosphere for a lower salary?*
- Question No. 4: *Are employees dissatisfied with the amount of salary they receive for the work done?*
- Question No. 5: *Do workers want a higher salary for the work they do?*

The youngest respondent is 25 years old and the oldest respondent is 63 years old (Table 2). The study involved 233 respondents (N = 233), the minimum age of respondents is 25 years, and the maximum number of years of respondents is 63 years, 25% of respondents are 34 years old, the median is 39 years old, and 75% of respondents are 45 years old. The difference between the maximum and minimum number of years, ie the range is 38.

N	Valid	233
	Missing	0
Mean		40.47
Median		39.00
Std. Deviation		8.431
Range		38
Minimum		25
Maximum		63
Percentiles	25	34.00
	50	39.00
	75	45.00

Table 2: Respondents by age
(Source: author's work according to research results)

The study involved 191 women and 42 men out of a total of 233 respondents (Table 3).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	191	82.0	82.0	82.0
	Male	42	18.0	18.0	100.0
	Total	233	100.0	100.0	

Table 3: Respondents by gender
(Source: author's work according to research results)

Of the total number of respondents (N = 233), 182 employees (or 78.1%) are employees, and 51 employees (21.9%) are managers. Table 4 shows the respondents according to the completed level of education. The largest number of respondents graduated from college (47.2%), followed by high school (35.6%).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	college	110	47.2	47.2	47.2
	doctorate	7	3.0	3.0	50.2
	high school	83	35.6	35.6	85.8
	master's degree	33	14.2	14.2	100.0
	Total	233	100.0	100.0	

Table 4: Completed employee education level
(Source: author's work according to research results)

Table 5 shows which company employs employees. The largest number of respondents works in a state-owned company (127 employees), followed by a private company (103 employees) and very few respondents own or found their own company.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	founder of his own enterprise	3	1.3	1.3	1.3
	privately owned enterprise	103	44.2	44.2	45.5
	state owned enterprise	127	54.5	54.5	100.0
	Total	233	100.0	100.0	

Table 5: Type of enterprise in which the respondents are employed
(Source: author's work according to research results)

Employees were asked how important their salary is in the workplace, as a material factor of employee satisfaction in the workplace (Table 6), on a scale of 1 to 5. Grade 1 represents the lowest grade (not important salary at all), grade 2 (not important) salary), grade 3 (medium is important salary), grade 4 (salary is important) and grade 5 represents the highest grade (salary is very important). According to the survey results, salary is important to employees (grade 4 was chosen by 53.6% of respondents), and salary is very important (grade 5 was chosen by 36.5% of respondents), while a very small percentage of respondents whose salary is not important as a satisfaction factor. What is the situation in the assessment of employees' attitudes about the importance of intangible factors is shown in the tables below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	1.7	1.7	1.7
	3	19	8.2	8.2	9.9
	4	125	53.6	53.6	63.5
	5	85	36.5	36.5	100.0
	Total	233	100.0	100.0	

Table 6: Assessment of the importance of wages as a material factor of employee satisfaction
(Source: author's work according to research results)

From Table 7 it can be seen how the employees assessed the importance of the intangible factor, a good work atmosphere. Grade 5 (very important) was rated by the importance of a good working atmosphere by 170 employees or 73%, while grade 4 (important) was chosen by 57 employees or 24.5% of employees for a good working atmosphere. Working atmosphere as an intangible factor of employee satisfaction is very important to employees because a very small percentage of employees (0.4%) who rated the importance of working atmosphere with a grade of 2 (not important), and grade 3 (medium) was chosen by only 2.1% respondents out of a total of 233 respondents.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	0.4	0.4	0.4
	3	5	2.1	2.1	2.6
	4	57	24.5	24.5	27.0
	5	170	73.0	73.0	100.0
	Total	233	100.0	100.0	

Table 7: Assessing the importance of a good work atmosphere as an intangible factor of employee satisfaction in the workplace
(Source: author's work according to research results)

Another intangible factor whose importance is examined in employees is the behaviour of colleagues, which is shown in Table 8.

The vast majority of respondents the behaviour of colleagues is important (35.6% of respondents) and very important (60.9%) respondents. There is a small percentage of respondents who do not care about the correct behaviour of work colleagues (0.4%).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	0.4	0.4	0.4
	3	7	3.0	3.0	3.4
	4	83	35.6	35.6	39.1
	5	142	60.9	60.9	100.0
	Total	233	100.0	100.0	

Table 8: Assessment of the importance of correct behaviour of work colleagues as an intangible factor of employee satisfaction in the workplace
(Source: author's work according to research results)

How important the correct behaviour of superiors is to employees is shown in Table 9. Grade 5 for the intangible factor of employee satisfaction in the workplace - the correct behaviour of superiors was chosen by the majority of respondents, 70.8%. The percentage is lower by 2.2% in relation to the work atmosphere and by 9.9% lower in relation to the correct behaviour of work colleagues, for grade 5 (very important). There is also a small number of respondents (0.4%) who do not care about the correct behaviour of their superiors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	0.4	0.4	0.4
	3	2	0.9	0.9	1.3
	4	65	27.9	27.9	29.2
	5	165	70.8	70.8	100.0
	Total	233	100.0	100.0	

Table 9: Assessment of the importance of correct behaviour of superiors as an intangible factor of employee satisfaction in the workplace
(Source: author's work according to research results)

Low stress is very important for 67.8% of respondents (Table 10), while it is important for 21% of respondents. For employees, the most important intangible factor of employee satisfaction in the workplace is a good work atmosphere, then job security, then the correct behaviour of superiors, correct behaviour of colleagues, low stress and last but not least the possibility of advancement.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	1.3	1.3	1.3
	3	23	9.9	9.9	11.2
	4	49	21.0	21.0	32.2
	5	158	67.8	67.8	100.0
	Total	233	100.0	100.0	

Table 10: Assessing the importance of low stress as an intangible factor of employee satisfaction in the workplace
(Source: author's work according to research results)

The importance of the possibility of advancement as an intangible factor of employee satisfaction in the workplace was chosen by the fewest respondents (grade 5-very important was chosen by 32.2% of respondents, and grade 4-important was chosen by 36.9% of respondents). Grade 3 (moderately important) was chosen by 23.6% of respondents).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	2.1	2.1	2.1
	2	12	5.2	5.2	7.3
	3	55	23.6	23.6	30.9
	4	86	36.9	36.9	67.8
	5	75	32.2	32.2	100.0
	Total	233	100.0	100.0	

Table 11: Assessing the importance of career opportunities as an intangible factor in employee job satisfaction
(Source: author's work according to research results)

Attitudes about employees' desire for better working conditions are shown in Table 12. 162 employees out of 233 total respondents want better working conditions (salary as a material factor of satisfaction and intangible factors analysed in work: good working atmosphere, correct behaviour of superiors and colleagues, low stress, job security and the possibility of advancement). 62 respondents (employees in companies in the Republic of Croatia) out of 233 employees surveyed said that they sometimes want better working conditions.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	9	3.9	3.9	3.9
	sometimes	62	26.6	26.6	30.5
	yes	162	69.5	69.5	100.0
	Total	233	100.0	100.0	

Table 12: Better working conditions for employees
(Source: author's work according to research results)

Furthermore, the survey questionnaire examined the attitudes of employees about the choice of high employee pay as a material factor of employee satisfaction and intangible factors of employee satisfaction in the workplace. The first factor examined in relation to a high salary is a good working atmosphere (Table 13), which was chosen by 178 employees (76.4%), and a high salary in relation to a good working atmosphere was chosen by 55 employees (23.6%). Respondents preferred the intangible factor - a good work atmosphere rather than a high salary.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good working atmosphere	178	76.4	76.4	76.4
	high salary	55	23.6	23.6	100.0
	Total	233	100.0	100.0	

Table 13: Employee selection - high salary or good work atmosphere
(Source: author's work according to research results)

What is the situation in choosing between high salary and correct behaviour of superiors can be seen in Table 14. Respondents again gave preference to the intangible factor, correct behaviour of superiors was chosen by 76% of respondents.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	correct superior	177	76.0	76.0	76.0
	high salary	56	24.0	24.0	100.0
	Total	233	100.0	100.0	

Table 14: Employee selection - high salary or correct behaviour of superiors
(Source: author's work according to research results)

Whether high salaries or correct behaviour of work colleagues are more important to employees is shown in Table 15. 162 respondents choose correct behaviour of superiors, and 71 employees chose high salaries. Employees give preference to the intangible factor.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	correct work colleagues	162	69.5	69.5	69.5
	high salary	71	30.5	30.5	100.0
	Total	233	100.0	100.0	

Table 15: Employee selection - high salary or correct behaviour of work colleagues (Source: author's work according to research results)

Table 16 shows that employees again choose the intangible factor of employee satisfaction in the workplace. The possibility of advancement was chosen by 140 respondents out of a total of 233, while the high salary in relation to the possibility of advancement was chosen by 93 respondents.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high salary	93	39.9	39.9	39.9
	possibility of advancement	140	60.1	60.1	100.0
	Total	233	100.0	100.0	

Table 16: Selection of employees - high salary or possibility of advancement (Source: author's work according to research results)

The low level of stress in relation to the high salary, as seen in Table 17, was chosen by the majority of employees (172 employees), and the high salary was chosen by 61 employees. Employees again gave preference to the intangible factor of employee satisfaction in the workplace, rather than the material - high pay.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high salary	61	26.2	26.2	26.2
	low stress level	172	73.8	73.8	100.0
	Total	233	100.0	100.0	

Table 17: Employee selection - high pay or low stress (Source: author's work according to research results)

Safe workplace (perception of employees as job security) was chosen as a factor of satisfaction by 185 employees, or 79.4%, while 48 employees or 20.6% chose a high salary in relation to a safe workplace. Employees, however, workplace safety to a high salary. Again, employees gave preference to the intangible factor of employee workplace safety.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high salary	48	20.6	20.6	20.6
	secure working position	185	79.4	79.4	100.0
	Total	233	100.0	100.0	

Table 18: Employee selection - high salary or workplace safety (Source: author's work according to research results)

Furthermore, the researchers were interested in whether employees would change their current job, and the answer of respondents is given in Table 19. 116 respondents (49.8%) would change their current job, and 77 employees would not change their current job, while 17.2% of respondents would not change their current job.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	40	17.2	17.2	17.2
	sometimes	77	33.0	33.0	50.2
	yes	116	49.8	49.8	100.0
	Total	233	100.0	100.0	

Table 19: Change of current job (Source: author's work according to research results)

Whether employees would choose to work in a good working atmosphere with a lower salary or in a bad working atmosphere with a high salary is shown in Table 20. Once again, respondents preferred the intangible factor, a good working atmosphere, rather than a high salary in an enviable percentage. 85.8% of employees (200 employees out of 233 respondents) chose a good work atmosphere, while a smaller number of respondents, 14.2% chose to work for a high salary in a bad work atmosphere.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good working atmosphere and low salary	200	85.8	85.8	85.8
	high salary and poor working atmosphere	33	14.2	14.2	100.0
	Total	233	100.0	100.0	

Table 20: Employee selection: high pay and poor work atmosphere or good work atmosphere and lower pay
(Source: author's work according to research results)

Employees were asked to choose one workplace satisfaction factor from those offered (Table 21). As the first factor of satisfaction, they chose a good work atmosphere (32.6%), then a high salary (23.6%), correct behaviour of superiors (21.0%). The possibility of advancement was chosen by 14.2% of employees and the lowest percentage of employees chose the correct behaviour of colleagues (8.6%). When employees have only two factors to choose from, then the non-material factor is good working atmosphere and all other intangible factors, and when they can choose four different intangible factors and one material - high salary, then the most important intangible factor is good work atmosphere and then in the second place the material factor high salary, and only then all the other intangible factors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	correct superior	49	21.0	21.0	21.0
	correct work colleagues	20	8.6	8.6	29.6
	good working atmosphere	76	32.6	32.6	62.2
	high salary	55	23.6	23.6	85.8
	possibility of advancement	33	14.2	14.2	100.0
	Total	233	100.0	100.0	

Table 21: The most important factor of employee satisfaction in the workplace
(Source: author's work according to research results)

Given the results of the research, hypotheses H1 are accepted: *Employees will choose to work for a lower salary in a good work atmosphere than for a higher salary in a bad work atmosphere and hypothesis* H2: *Leading intangible factor of worker satisfaction in their workplace is a good work atmosphere.* Hypothesis H3 is not accepted: *When employees have a choice between several intangible factors of worker satisfaction in the workplace and the material factor of worker satisfaction in the workplace - high salary, they will prefer high salary*, because the respondents, in the case when they were able to rank the factors themselves, chose in the highest percentage a good work atmosphere as the first most important factor of employee satisfaction in their workplace.

5. CONCLUSION

This research compares the attitudes of employees in private and state-owned enterprises in the Republic of Croatia (regardless of gender, completed education and type of company in which employees are employed) on the selection of intangible factors of employee satisfaction in their workplace in relation to high salary. The vast majority of employees prefer intangible factors over high salary. 76.4% of respondents chose a good working atmosphere and not a high salary. Furthermore, comparing the high salary with the correct behaviour of superiors and the correct behaviour of work colleagues, the percentages are similar to the factor of good work atmosphere. 76% of respondents gave preference to the correct behaviour of superiors against high salary, and 69.5% of employees gave preference to the correct behaviour of work colleagues in relation to high salary. Employees prefer a lower level of stress (73.8%) than a high salary, they also choose the possibility of advancement (60.1%) rather than a high salary. Workplace safety is very important to them and in relation to a high salary, 79.4% of employees choose workplace safety. According to the survey results, employees would rather work for a lower salary in a good working atmosphere (85.8% of respondents) than work for a higher salary in a bad working atmosphere (only 14.2% of respondents). These are respondents' choices when comparing high salary with one of the intangible factors of employee workplace satisfaction. In a situation where employees themselves rank intangible factors of workplace satisfaction, in the first place is a good work atmosphere (32.6% of respondents), then the material factor high salary (23.6% of respondents), then correct superiors, low stress and correct work colleagues. Therefore, a good work atmosphere is a leading intangible factor in employee satisfaction in their workplaces.

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FINANCIAL INSTRUMENT PROPOSAL FOR TURKEY TO FIGHT CLIMATE CHANGE: CARBON TAX OR CARBON TRADING?

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ABSTRACT

Global warming, especially climate changes, is perhaps one of the most important issues faced by world economies including Turkey. Although there are many factors that cause global warming, the main factor is greenhouse gases. The most important greenhouse gas is carbon dioxide. The share of carbon dioxide in the total amount of greenhouse gases reaches 80%. Climate change has become a socioeconomic phenomenon like inflation today. Just like inflation, the fight against climate change is among the main priorities of the political authority. In this direction policy makers apply to a financial-economic instrument as well as legal regulations. There are many country applications that a tax application called carbon tax can be an effective tool in reducing the carbon dioxide emission rate, which is among the main factors of climate change. Another policy tool used to reduce greenhouse gas emissions is carbon trading practices. Commercial permit systems consist of cap-and-trade systems and emission reduction credit systems. The aim of this study is to analyze the relationship between energy use, carbon emissions and economic growth in the Turkish economy, which aims to achieve Net Zero Carbon Emissions by 2053 to combat the negative effects of climate change, and to propose a suitable financial instrument (carbon tax or carbon trade) for our country. In this direction, the annual data of the variables were subjected to cointegration analysis. The findings show that there is a statistically significant long-term relationship between the variables.

Keywords: *Climate Change, Carbon tax, Carbon Trade, Greenhouse Gas Emission, Turkey*

1. INTRODUCTION

When historical process is examined, it is seen that one of the most basic requirements of industrialization is energy. Before industrial revolution, production, mostly based on human and animal power, changed its form due to discovery of steam power and commonly use of carbon-contented coal and natural gas in industry.

Beginning from the second half of 19th century, discovery of oil containing high carbon also brought a different dimension in industrial production. Beginning from the middle of 20th century, often use of various sorts of energy containing carbon, on the one hand, led production rate to increase, on the other hand, to emerge mass production (Jänicke and Jacob, 2009:4). The countries desiring to realize rapid industrialization breakthrough began to demand more carbon-contented energy for more production. This caused a considerable increase in greenhouse gases emitted to atmosphere. Greenhouse gases are defined as natural and human-sourced gas formations[1], which absorb ultra violet radiation in the atmosphere and reemit it, in United Nations Framework Convention on Climate Change. Greenhouses gases, due to the fact that they contain radiation, lead to the atmosphere to be warmed. This also causes the rains to seriously decrease in the areas, where drought is partly experienced and climate to change, while it leads to intensive rains and floods in the areas, which receive relatively more rain On the other hand, Intergovernmental Panel on Climate Change (IPCC) founded in 1988, in its 5th evaluation report published in 2014, it is put forward that earth surface temperature will increase between 1,5°C and 4,0°C until 2100 (IPCC,2014:19). This possible increase of temperature can seem insignificant at the first look. However, when remembered that the last ice age formed as a result of cooling down of 3°C, the catastrophes the temperature increase mentioned can cause lead policymakers to brood. For when looked at from the perspective of sustainable development, the situation is not very pleasant. While the disasters beginning to increase due to climatic change, on the one hand, is financial burden for government, due to compensation of the emerging loss, on the other hand, they can lead natural resources, used as production input, to be destroyed, and thus, fluctuations in production. The countries wanting to fight with the impacts greenhouse gases are still creating and possible to create in the future have tried to develop R&D and innovation-focused solution. In this manner, the developed countries, whose capital and technology accumulations are high, signed the successful studies in this area. However, the developing countries, which have relatively insufficient capital and technology, directed to economic solutions to internalize negative externalities climatic change creates. Because there are two important constraints in front of developing countries as market and R&D. Turkey, which is in the class of developing countries, also has begun to take important steps about fighting climatic change after a long interval. In July 2021, Ministry of Trade published action plan of “Green Agreement”. This plan has a quality of roadmap, which encourages green entrepreneurship and supports production creating added- value, incentivizing improvement of national value chains (Ticaret Bakanlığı,2021:1). With no. 7335 law, published in official journal dated 07/10/2021 and numbered 31621, Turkish Grand National Assembly approved signed Paris Climate Agreement on behalf of Turkey on the date of April 22, 2016. Even if the agreement of interest loaded several financial burdens onto Turkey, it is expected that our industry to reach green technology will become easier, and that it will improve investment possibilities in this area. In terms of bringing functionality in the targets set in Paris Climate Agreement, national contributions perform an important duty. Turkey, in this direction, declared “Intended Nationally Determined Contributions (INDCs)”statement, expected to occur as of 2030, on the date of September 20, 2015 as reduction from an increase reaching 21% about carbon emission[2]. In other words, Turkey revises the right to increase carbon emission it has by 2030, reducing in the rate of 21%. With the no.85 presidential decree published in the Official Journal, dated 29/10/2021 and numbered 31643, the name of Ministry of Environment and Urbanization was replaced as Ministry of Environment, Urbanization and Climate Change. Even this arrangement, alone, is the indicator of that Turkey was so much serious about climatic change.

[1] https://webdosya.csb.gov.tr/db/iklim/webmenu/webmenu12421_1.pdf Access Date: 25/06/2022
[2] https://www.mfa.gov.tr/paris-anlasmasi.tr.mfa Access Date: 27/07/2022

Warming and Climate change arisen from greenhouse gases any longer reaches a position, where policies will be developed in “Climatic Change Presidency”. About fight with climatic change, for Turkey to catch targets of “2053 Vision”, only legal regulation will not be enough. In catching the targets of interest, certainly, economic-financial policy instruments will be needed. Taxing is a leading one among the main instruments having this feature. As known, taxing an important instrument having the ability to be able to affect the various sectors of the society. Taxing, on the one hand, can take under control instabilities occurring in economy, on the other hand, can provide finance for producing public products and services (Şen and Sağbaş,2020:23). In reducing carbon dioxide emission rates, one of the main factors of climatic change, the first of financial instruments to be applied is the application of carbon tax. Carbon tax is a sort of tax, to which is applied to eliminate negativities CO_2 emissions caused, and which is based on the basis “that pollutes pays” (Aliusta et al, 2016:394). Another policy instruments having the purpose of reducing gas emissions is applications of emission trading system, which is a carbon pricing policy. The aim of this study, for Turkey entering a new period in fighting with climatic change, is to suggest financial instruments that will contribute to realize long term targets specified. In the direction of this aim, in Turkey, the relationship between carbon emission and the variables of electricity consumption and economic growth will be tried to be introduced by means of econometric analysis. In this direction, time series belonging to variables were subjected to unit root tests to test stationarity. The relevant series was rid of unit roots and made stationary. Then, in order to identify whether or not the series made stationary have any statistically significant interaction between parameters in the long term, Johansen Co-integration test was made. The direction of interaction between the variable was tested by Granger Causality Test. According to the findings obtained as a result of econometric analysis, in Turkey, in the relevant period, there is a long term and statistically significant relationship between per capita carbon emission and per capita GDP. The direction of this relationship is a unidirectional causality relationship from carbon emission to economic growth.

2. LITERATURE REVIEW

In the first industrial revolution and next period, intensive use of natural resources due to production led to devastation of environment. In addition, uncontrolled expiration of natural resources with wild capitalist motives, the requirement to protect environment against human engendered. Especially, the idea to protect that has begun in the period following 2nd World War took place in both national and international judiciary texts. In economic literature, the concept of sustainable development has become a concept the scientists emphasized importantly. In this direction, many researchers directed their studies to examine the relationship of counties with energy consumption and economic growth. In the next studies, the relationships between the variables of energy consumption, economic growth and carbon emission of the relevant countries have become the study subject of scientists. The table, in which the summary information belonging to the studies under consideration is as follows:

Table following on the next page

Author	Periods	Countries	Method	Conclusion
Wolde-Rufael (2006)	1971-2001	17 African Countries	Co-integration-Granger Causality Test	It is met long term relationship between KB electricity consumption and KB GDP for only 9 African Countries.
Ang (2007)	1960-2000	France	Co-integration and Error Correction	It was observed that there was univariate causality from CO2 and energy consumption and in the short period from energy to output.
Narayan and Smyth (2009)	1974-2002	Some Middle East Countries	Causality	Export, energy consumption and GDP were examined and bidirectional causality was met.
Halıcıoğlu (2009)	1960-2005	Turkey	ARDL Boundary Test	Carbon emissions are determined by energy use, income and foreign trade. It was observed that the main parameter of carbon emissions was income.
Zhang and Cheng (2009)	1960-2007	China	Granger Causality Analysis	It was met univariate causality relationship from energy use to carbon emission
Acaravcı and Öztürk (2010)	1968-2005	Turkey	ARDL and Granger Causality Test	There is a long-term interaction between growth, carbon emission, energy use and employment. Between per capita carbon emission and per capita energy use and per capita GDP, there is no causality.
Ciarreta and Zarraga (2010)	1970-2007	Western European Countries	Panel Data and Causality	Between electricity prices and GDP, mutual causality was observed.
Apergis and Payne (2010)	1992-2004	Some commonwealth of independent states	Panel Data and Error Correction	In the long term, there is a significant effect of energy use on carbon emission. In the short term, mutual causality was observed from energy use and real production to carbon emission.
Hossein (2011)	1971-2007	Turkey, Brazil, Thailand, China, South Africa, India, Malaysia, Mexico, Philippines	Panel Data, Granger Causality Test	Between carbon dioxide emissions energy use, growth, openness and urbanization level there is co-integration. Long term causality relationship was not met. In short term, unidirectional causality relationship was met from growth and openness to carbon emission, from growth to energy use, from openness and urbanization to growth,
Bella et al. (2014)	1965-2006	Some OECD Countries	Panel Data and Vector Error Correction	Non- linear relationship was observed between carbon dioxide, electricity use and growth.
Çetintaş and Sarıkaya (2015)	1960-2004	USA and United Kingdom	ARDL	In United Kingdom, it was observed that growth positively affects carbon emission in short and long term. In USA, it was observed that there is no effect of economic growth on carbon emission.
Salahuddin et al (2018)	1980-2013	Kuwait	ARDL, Vector Error Correction and Granger	Growth, electricity use and foreign direct investments increase carbon emission in short and long term.

Table 1: Literature Review
** prepared by the authors*

The first study carried out related to energy consumption of the countries belongs to Kraft and Kraft (1978). In the period of 1947-1974, in the study examining causality relationship between energy consumption and economic growth in USA, Sim's method was used.

In the studies following the study of interest, it is seen that energy consumption and the other variables the relevant countries have are included in the study. In return to this, it is seen that most of current literature discuss the relationship of energy consumption, economic growth and carbon emission of the countries.

3. EMPIRICAL ANALYSIS

3.1. Data, Methodology and Findings

In this section of the study, in Turkey, interaction between per capita carbon dioxide emission and per capita GDP will be introduced by means of econometric analysis. In this direction, the data belonging to the relevant variables were drawn from database of World Bank.

Data	Data Indication	Data Resource	Examination Period
Per capita CO2 emission (Ton)	CO2	World Bank Database	1980-2021
Per capita GDP ($)	GDP	World Bank Database	1980-2021

Table 2: The information belonging to parameters used in empirical analysis

Econometric prediction model used in analysis takes place below:

$$GDPt = \boldsymbol{\alpha} 0 + \boldsymbol{\alpha} 1\ CO2t + \boldsymbol{\mu t} \qquad \textbf{(1)}$$

According to prediction model, "GDP" is dependent variable and "CO_2" is independent variable. **α***0* represents fixed term; **μt,** error term and **α***1*, the variable of the coefficient of per capita CO_2 emission. For a certain time period, before studying whether or not there is statistically significant relationship between time series, logarithms of time series were taken. Following this process, for testing whether or not time series of log variables have unit root, unit root tests were applied.

3.1.1. Unit Root Tests

That time series belonging to the parameters, observed in the analyses, are not stationary, in other words, that they contain unit root, leads to spurious regression and, thus, to erroneous findings (Gujarati and Porter, 2014: 822). In econometric analyses, in testing stationarity of time series belonging to the variables, various statistical tests are utilized. In our study, ADF (Dickey and Fuller) (1981) and Phillips and Perron (PP) (1988) unit root tests, among the tests of interest, wee used. The results of ADF unit root, applied to time series belonging to both variables, whose logarithms are taken, take place in the following Table 3.

Variables	ADF Test Stat.		Phillips-Perron Test Stat.	
	Level	First Difference	Level	First Difference
LGDP	2.125671	- 6.121923	2.754448	- 6.126721
	Prob=0.9971	Prob= 0.0000*	Prob= 1.0000	Prob= 0.0000*
LCO2	- 0.334648	- 7.214356	0.336193	- 7.996573
	Prob= 0.9232	Prob=0.0000*	Prob= 0.9562	Prob=0.0000*

Table 3: The results of ADF and PP Unit Root Test
** shows that time series belonging to the variables are stationary at the significance level of 1%.*

According to the results taking place in Table 3, time series belonging to both variables are not stationary at the level and do not contain unit root. Therefore, The first differences of time series belonging to all variables were taken and unit root test was applied. As a result of this process, it was followed that both time series were rid of unit roots and that series became stationary at the first level.

3.1.2. Co-Integration Test

After time series were made stationary at the first level, the level of long term relationship between the variables will be introduced by means of Johansen-Juselius (1990) Co-integration test. In Johansen-Juselius Co-integration analysis, two tests are used called Trace Test and Maximum Test (Sevüktekin and Çınar, 2017: 596)

$$\lambda trace = -T \sum_{j=1}^{n} \ln(1-\lambda i) \qquad \textbf{(2)}$$

$$\lambda_{tmax} = -T\ln(1-\lambda_{r+1}) \qquad \textbf{(3)}$$

The value λ is the values obtained from Π matrix. These values are compared with the critical values of Trace Test and Maximum Test (Johansen and Juselius, 1990; Osterwald – Lenum, 1992; Asteriou and Hall, 2011:370).

Trace Test	Makximum Test
H_0: $r \leq 0$ H_1: $r \geq r_0 + 1$	H_0: $r = 0$ H_1: $r = r_0 + 1$

Table 4: Trace test and Maximum Test Hypotheses

In the table 4, the hypotheses of Trace Test and Maximum Test were given place. In such a way that **r** the number of co-integrated vector, Hypotheses belonging to Trace Test and Maximum Test were shown. If maximum eigenvalue, λmax, test statistics and trace test statistics is smaller than table values, it is decided that series are not co-integrated. In this case, H0 hypothesis cannot be rejected. If test statistics is bigger than critical value, H0 hypothesis is rejected. Hence, it is decided that the variables are co-integrated (Tarı, 2010: 429).

Trace Test	Makxiumum Test	Critical Values	
		%5 (Trace)	%5 (Max)
22.361	22.592	18.398	17.148

Table 5: Johansen-Juselius Co-integration Test Values

In Table 5, the results of Johansen-Juselius Co-integration Test take place. The values of test statistics in the table is bigger than the relevant critical values of Trace Test and Maximum Test at the significance level of 5%. Therefore, H0 hypothesis is rejected for both trace and maximum tests. In other words, there is a co-integration relationship between the variables in the long term. If we express in the different way, in Turkey, in the period 1980-2021, there is a statistically significant and long term co-integration relationship per capita GDP and per capita carbon emission.

3.1.3. Granger Causality Test

After identifying co-integration relationship between the variables, this time, the direction of the relationship mentioned will be determined. The direction of the relationship between the variables will be introduced by Granger Causality Test.

Direction of Causality	F-statistical	Prob.
*L*GSYIH → LCO2	0.75162	0.6772
*L*CO2 → *L*GSYIH	2.69639	0.0353**

Table 6: The Results of Granger Causality Test

The results of Granger Causality Test made take place in Table 6. According to the data in the table, in Turkey, in the period 1980-2021, there is not any causality relationship from economic growth to carbon dioxide emission. In return to this, again in the same period, there is a unidirectional causality relationship at the significant level of 5% from carbon dioxide emission to growth. In other words, in Turkey, in the period 1980-2021, increase occurring in per capita carbon dioxide emission led per capita GDP to increase and, thus, economic growth to increase.

4. DISCUSSION AND CONCLUSION

As given place in the previous sections of the study, carbon-based fuels revealing high energy can lead to global warming and, thus, climate change. Climate change can damage to country economy via forest fires, flood and natural disasters. According to a study carried out by McKinsey Global Institute, climate changes are expected to create destructive effects on Turkey economy. Turkey, until 2050, is among the countries, which will experience the must drought arisen from climate, together with Egypt, Iran and Mexico economies (McKinsey Global Institute, 2020:104). This possible scenarios, related to livability and water scarcity in Turkey, especially supply chains and agricultural areas, can considerably jeopardize usability of natural assets and shortly interrupt sustainable development. Turkish Public Administration, which is aware of the case, has gone on attack about policy development in the area of climate change as of the second half of 2021, In this direction, Ministry of Trade published “Green Agreement Action Plan” in July 2021. This plan is an important milestone in terms of “green economy”, defined as encouraging economic growth and development by protecting natural assets, which allows for sustaining the resources increasing the welfare levels of the individuals and environmental cycle(OECD, 2011:4). Another an important move made about fight with climate change in our country is no. 7335 law, published in the official journal, dated 07/10/2021 and numbered 31621. With this law, Turkish Grand National Assembly (TBMM) approved Paris Climate Agreement, signed on behalf of Turkey on the date of April 22, 2016. With no 85 decree of Presidency, published in the Journal dated 29/10/2021 and numbered 31643, the name of Ministry of Environment and Urbanization was replaced as Ministry of Environment, Urbanization and Climate Change. In addition, Headship of Climate Change was founded under the mentioned under consideration. In our country coming into structural transformation in fighting with climate change, above mentioned arrangements has a great importance in judiciary sense. In our opinion, beside legal arrangements, the economic and fiscal applications to be appealed will be effective in fighting with climate change. According to the findings obtained as a result of empirical analysis given place in the previous section, in the period 1980 -2021, in Turkey, there is a long term interaction between carbon emission and economic growth. In addition, as a result of causality analysis, the direction of interaction between the variables is from carbon emission to economic growth. The meaning of this, is that economic and financial applications such as carbon tax or emission trade system to be implemented have a vital importance for Turkey, which aims to reach as sustainable growth by controlling carbon emissions that is main resource of climate change. In Turkish taxing system, there is currently not any direct financial instrument to reduce carbon-sourced greenhouse gas emission. In this context, for Turkey adopting to fight decisively with climatic change, which is focus point of the study, and targeting to reach net zero carbon emission in 2053, we think that application of carbon tax may be a useful financial instrument.

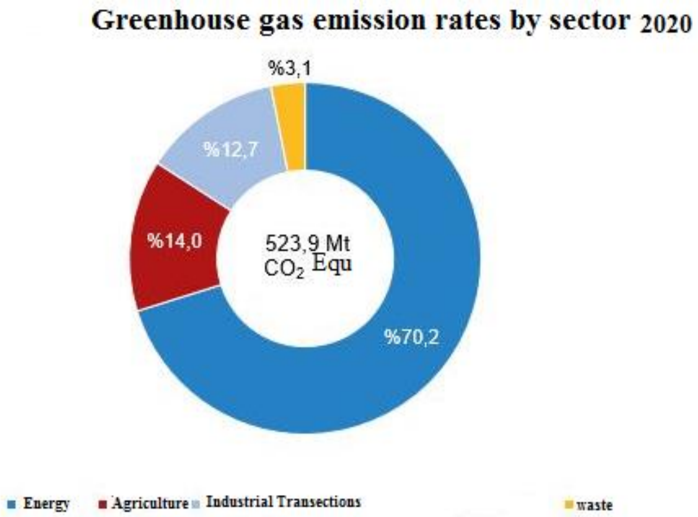

Figure 1: Greenhouse Emission According to the Sectors
(Source: Turkish Statistical Institute (TUIK) News Bulletin, Sera Gazı Emsiyonu İstatistikleri 1990-2020)

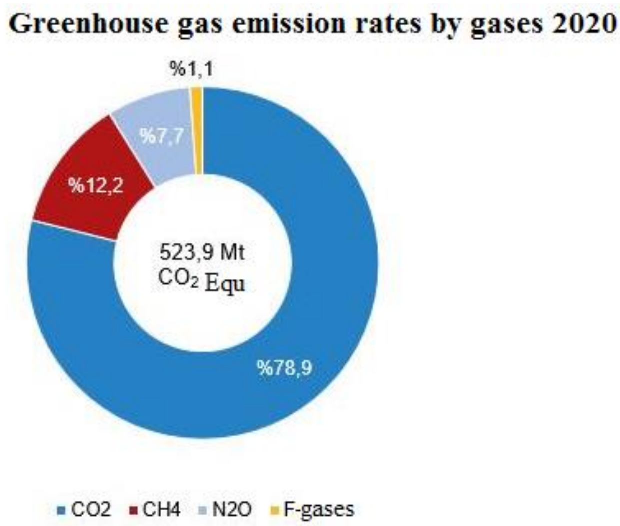

Figure 2: Greenhouse Emission According to gases
(Source: Turkish Statistical Institute (TUIK) News Bulletin, Sera Gazı Emsiyonu İstatistikleri 1990-2020)

In Figure 1 and Figure 2 taking place above, the distributions of greenhouse emissions according to the sectors and sorts of gas is shown. In Turkey, in the period 1990-2020, main source of greenhouse gases emitted to atmosphere is carbon dioxide. In Turkey, again in the relevant period, the sector, which emits the most carbon dioxide, is energy sector overwhelmingly. Although the situation is like this, the only tax applied to directly protect environment is Environmental Cleaning Tax. In spite of this, the technique of the tax of interest is not enough to prevent environmental pollution that occurs. In related to Environmental Cleaning Tax, tax is collected from dwellings in a fixed price, including it in water bill. From commercial and industrial partnership, a yearly fixed tax is received according to the sort and physical properties of organization (Reyhan,2014:116). In Turkey, the other taxes, which is indirectly related to the environment, are fuel taxes, motor vehicle tax and some special consumption taxes. Approx. 95% of revenue acquired from applications of the tax related to environment applied over Turkey consist of fuel and motor vehicle taxes.

Fuel taxes form almost 65 % of total taxes. Tax rates in fuel prices is very high (Özden,2016:514). Considering this structure of Turkish Taxing System and complying with the main principles of taxing, we think that application of carbon tax to be received:

- from fuel oil, natural gas used for heating in urban occupancy areas and commercial business enterprises, and
- from highway transportation in transportation sector

This can make contribution to Turkey in catching long term targets determined. For Turkey, on the back of proposing carbon tax instead of carbon/emission trade system, as mentioned in the relevant section of the study, there are some reasons such as the fact that carbon/emission trade system has more disadvantages and that carbon tax has a functional structure that is easily adaptable to Turkish taxing system. Application of carbon tax proposed for Turkey, before implementing, [should be discussed] in the large workshops, where [the representatives] of all sectors, academics, government administrators will participate in; thus, the expected utility from application of carbon tax can be increased and troubles possible to be experienced will be reduced to minimum.

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ANALYSIS AND TRENDS OF MARITIME PASSENGER TRAFFIC IN EUROPEAN UNION

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ABSTRACT

Maritime transport has a significant role in economic exchange, and it is the EU countries that make up a crucial segment of world maritime transport. Passenger shipping is a special type of maritime shipping that continuously, using special ships, performs maritime transport of passengers. Ships specializing in passenger transport, whether on cruises or regular passenger transport, are taking over the dominance of maritime traffic. The paper analyses the system of functioning of the maritime shipping with special emphasis on its subsystem - passenger traffic and it's trends in European Union. Although maritime traffic in the past was the only way for people to travel between continents, it still has many effects today. Maritime shipping contributes to the development of coastal cities, connects islands with the mainland, is important for the development of the economy of all coastal areas, countries with access to the sea and the EU as a whole. Recently, there has been an intensive increase in demand for passenger shipping. Contribution of this paper is simultaneously marked by the following trends: it is noted that shipping companies are concentrating on a smaller number of ports of call, the number of shipping companies is reduced to several large ones through the consolidation of small shipping companies, incresing number of various services and products intended for passengers are introduced. The most significant one is the increase in the quality of services provided to passengers. Analysing development trends, today's modern passenger terminals must meet the increasingly demanding and complex needs of maritime passengers both in liner shipping and cruises.

Keywords: *European Union, Maritime Passenger Traffic, Maritime Passenger Ports, Passenger Ships*

1. INTRODUCTION

Maritime transport is the most important maritime activity that enables global economic connectivity. Total revenues of maritime transport amount to more than 70 billion Euros in the Mediterranean Sea (5% of the total revenues worldwide), which generate a Gross Value Added (GVA) of 27 billion Euros. Around 550,000 jobs are directly created by the maritime transport sector.[1] Considering the technological, but also the organizational and economic criteria, one of the most important types of maritime shipping is passenger shipping. Passenger shipping is a special type of maritime shipping that continuously, using special ships, performs maritime transport of passengers. Maritime passenger traffic is a relatively young activity in the modern development trend, in the development of which tourist attractions and maritime routes play a major role. Maritime passenger traffic has been significantly expanding globally over the last decade. Therefore, understanding the relationship between service quality, customer satisfaction and behavioral intentions in maritime passenger traffic is of critical importance for global competition. Regarding the design and organizational aspect of business operation, maritime passenger ports can be classified as follows: liner and cruise.[2] Eurostat database is structured in similar way as this classification, i.e. in the database two types of data are contained, cruise and non-cruise maritime passengers. Liner maritime passenger traffic is important for the development of coastal economies, specially tourism and trade in preventing the emigration of the island population.[3]

2. IMPORTANCE OF THE MARITIME PASSENGER PORTS FOR PASSENGER TRAFFIC DEVELOPMENT

One of the crucial prerequisites for the development of maritime traffic and tourism, and for satisfying the passenger demands for transport, is the presence of maritime passenger ports. Marine ports play an increasingly important role in promoting and develoing the tourism sector. The role of modern maritime ports is particularly important for the overall economic welfare of the specific region.[4] Developed countries have long since realized that the growth of ports and port systems are one of the major preconditions for the development of national economy, i.e. the economy of the gravitational zone that belongs to a specific port. Ports represent a part of the entire country’s traffic system in which all the traffic is accumulated. Maritime passenger ports are one of the most important preconditions for the development of transport, tourism and economic activities in the function of tourist offer and satisfying the transport needs of passengers. The optimal development of the passenger port system can only be achieved through a well-managed port policy in accordance with the goals and measures of the general economic policy.[5]

Table following on the next page

[1] UN, https://www.medqsr.org/maritime-transport

[2] Stupalo, V. Jugović, A. Mrvica, A. (2016.). *Quantitative Analysis of Maritime Passenger Transport in Europe,* Naše more, Vol. 63 No. 4., str. 256-263. https://hrcak.srce.hr/169836

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[4] Hlača B., Rudić D., Hirnig S. (2010.). *Rail transport-an important factor in the port of Rijeka development*. PROMETTraffic& Transportation, vol. 22 (5), pp. 379-388. DOI: 10.7307/ptt.v22i5.203.

[5] Jugović, A., Gračan, D. i Barkiđija Sotošek, M. (2022). C*roatian ports of international economic interest with a focus on the tourisam development perspective of the Port of Zadar.* Pomorstvo, 36 (1), 74-84. https://doi.org/10.31217/p.36.1.9

BASIC ELEMENTS	BASIC INFRASTRUCTURE
1. seafarers and other employees at the passenger shipping companies, 2. passenger ships as a means of transport, 3. sea as the traffic route, 4. passengers and vehicles as the objects of maritime transport.	1. construction and maintenance of the maritime passenger ports (passenger terminals), 2. construction and maintenance of the signaling and other devices and equipment at the beginning and the end of the maritime route.

Table 1: Basic guidelines of the maritime passenger transport
(Source: Delibašić T, Vidučić V. Međuovisnost putničkog morskog brodarstva i turizma u Hrvatskoj. Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu. 2003, Rijeka: Faculty of Economics, University of Rijeka, 21(2), p. 80.)

The peculiarity of ports is that they are not an end in themselves, but are in the function of service users, so everyone who benefits from ports should be interested in their business and development.[6] Modern passenger terminals are the prerequisite for the optimal running and development of liner maritime passenger traffic and cruises. An adequate and well-organized maritime passenger terminal is crucial for the development of many complementary services related to maritime passenger traffic, primarily promoting the upgrade of the tourist supply and development of tourism.[7]

3. NEWS TRENDS IN THE MARITIME PASSENGER TRAFFIC

This section presents a summary of the most relevant trends and developments that are currently ongoing in the maritime sector. The maritime passenger traffic is influenced by many trends and drivers which are wide ranging topics from policy to economics issues and from technology to environmental issues. Key is the sustainability with respect to the developments. The trends and drivers are discussed around the following sectors (Figure 1).

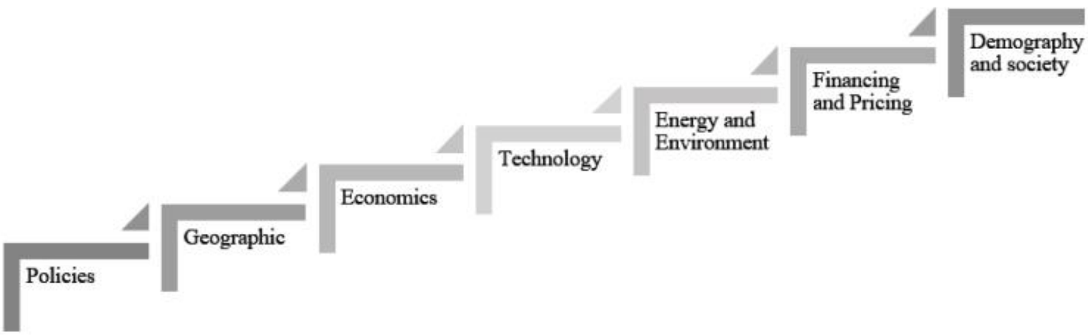

Figure 1: Trends and developments influencing port sector
(Source: Deloitte Global Port Advisory 2020)

Considering policies, national and international laws and regulations influence the daily management of the Port Authority. Most importantly are the regulations by the IMO, SOLAS and the EU next to the national legislations such as the maritime domain act and the cabotage law which will cease by end 31st December 2016. From a geographical point of view, it is very important to be well positioned and connected to other surrounding ports. Economics drive the transport chain.

[6] Jugović A., Kesić B., Jakomin I. (2007.). *Organizacija i razvoj pomorsko-putničkih luka*. Informatologia, vol. 40 (2), pp. 146-152.
[7] Jugović *et al.*, 2007

Commodities would always flow along low cost solutions where service and efficiencies are at acceptable levels. Global economic trends relate to: Globalization of trades, China's Maritime Silk Route, European production moved South and East, Society is changing from industry to commerce and tourism, Economies of scale & larger vessels, Overcapacity and lower freight rates, Panama Canal expansion set new design parameters, Consolidation amongst shipping lines. Technology drives todays transportation flows. The industry is highly capital intensive and efficiencies come mostly through major improvements such as the requirements of new port cranes. However, next to those, many technological and efficiency improvements and be reached through appliances of SMART technologies today's mobile and IT systems offer. One of the main trends of Energy and Environment is the adaptation of green policies. The reduction of greenhouse emissions is to become top priority of the port and transport sectors as new regulation for the sector is being draft at EU and international levels. This means that awareness is not sufficient, key is to "measure, control and act" to reduce greenhouse emissions. Proactive steps should be considered to become a "green port" and to reduce emissions both on shipping, road and rail transportation. Regarding Financing and Pricing, ports in a landlord system in Europe have to become self sustainable. This should become prime objective for the commercial activities at ports. Part of this objective is the transparent financial reporting. In order to understand the competitiveness of ports frequent competitive tariff benchmarking should take place. In the financing sector there is a trend towards more Private funding rather than Public funding. Taiking into account Organisation, Demography and Society, Landlord Port Authorities in Europe have become stand-alone entities through a process of commercialisation, corporatization and privatisation. Emphasis is the commercialisation aspect on commerce and marketing and a client account approach in order to become fully customer oriented and to become financially self-sustainable. Further the organisation should emphasis the Safety, Health and Environmental issues next to quality assurance through ISO certification. Regarding demography and society trends, it can be noted that industrial ports have been moved out of the cities. This classification of trends shoves how the most important trends follow from the different drivers, and what this may mean for the port industry in the future. Historically, world seaborne tramaritime traffic expansion has been well correlated to global economic growth. Maritime traffic towards and from EU Mediterranean ports will be influenced by the doubling of the Suez canal that will allow a proportional increase of the traffic, but also by key drivers such as weak oil refining capacity outlook for Europe, a changing energy mix, the global demand for Liquified Natural Gas (LNG) as a fuel for maritime shipping, the implementation of Trans European Networks, the potential designation of the Mediterranean as a Sulphur Emission Control Area (SECA) and a limited renewal rate of the world fleet.

4. ANALYSIS OF SEA PASSENGER TRAFFIC

Maritime transport in the Mediterranean Sea has considerably increased during the last two decades. Between 1997 and 2006, maritime transport reported a significant growth with an increase in the deployed transport capacity for over 50%. This rise was due to a 30% increase in the average ship size combined with an increase in ship traffic frequency by around 15%. At the interface of three continents (Europe, Africa and Asia through the Suez Canal), the Mediterranean Sea registers a high maritime transport activity of goods, energy products and passengers. Maritime transport in the Mediterranean Sea will increase in the coming years, both in number of routes and in traffic intensity. Associated pressures on the marine and coastal environment will inevitably increase. In fact maritime transport contributes to many disturbances that severely affect marine and coastal habitats and species, including pollution, collision with large cetaceans, marine litter, underwater noise and the introduction of non-indigenous species.

It is shown below the latest statistical data on passenger traffic in ports in the European Union (EU).[8] After falling regularly between 2008 and 2014, with an exception in 2013 (+0.3 % compared to 2012), the total number of passengers embarked and disembarked in EU ports recovered in the last five years to reach a peak in 2019 with 418 million (+2.2 % in 2019 compared to 2008, year of the previous peak). As the result of strict precautionary measures taken because of the COVID-19 pandemic, maritime passenger transport almost halved in 2020 compared to 2019 (-45.0 %). The number of passengers passing through EU ports reached a low point of 230.1 million in 2020 (Figure 2). All quarters of 2020 were substantially impacted with -14.0 % in the first quarter when comparing to the same quarter of 2019, -69.3 % in the second quarter, -35.7 % in the third quarter and -47.2 % in the fourth quarter according to Eurostat.[9] Unlike movements of goods, where broadly 60 % of goods are unloaded and 40 % loaded in the EU ports, the difference between the number of passengers disembarking ("inwards") and embarking ("outwards") in EU ports is generally small. This reflects the fact that seaborne passenger transport in Europe is mainly carried by national or intra-EU ferry services, with the same passengers being counted twice in the port throughput statistics (once when they embark the ferry in one EU port and once when they disembark the same ferry in another EU port).

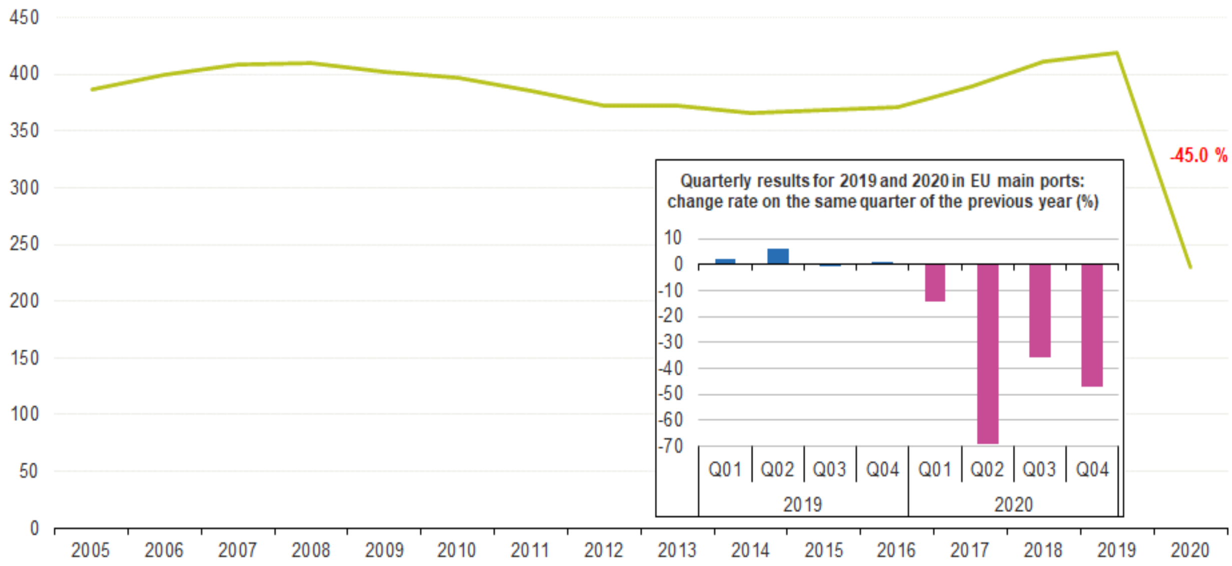

Figure 2: Seaborne passengers embarked and disembarked in all ports, EU, 2005-2020 (million)
Source: Eurostat (mar_mp_aa_cph) and Eurostat (mar_pa_qm)

At 55.1 million and 40.9 million seaborne passengers respectively, Italian and Greek ports accounted for a combined share of 42 % of the total number of passengers embarked and disembarked in EU ports in 2020 (Figure 3). As a consequence, Italy and Greece remained the main countries in terms of EU seaborne passenger transport. The two leading countries were followed by Denmark with 30.9 million passengers embarked and disembarked in 2019, Croatia (18.8 million), Germany (16.4 million), Spain (14.3 million), Sweden (14.0 million) and France (10.4 million).

[8] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Transport_statistics_at_regional_level (7.6.2021.)
[9] Eurostat 2020 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Transport_statistics_at_regional_level

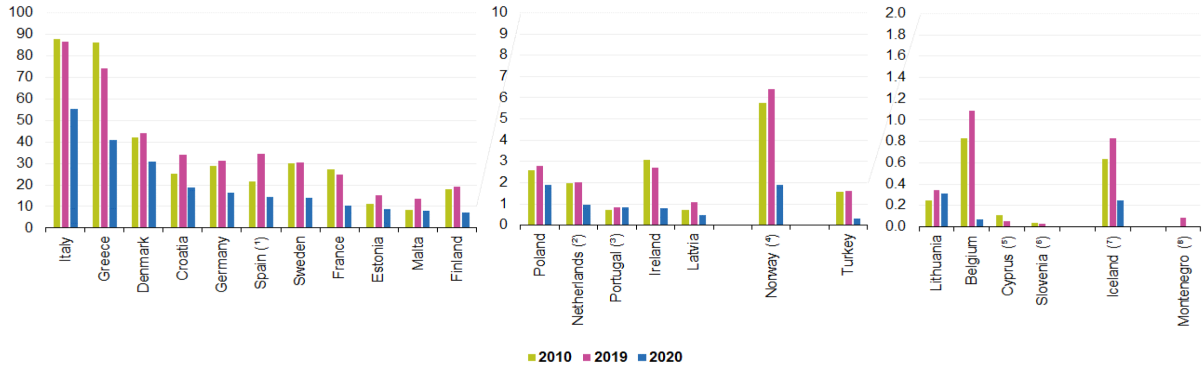

Figure 3: Seaborne passengers embarked and disembarked in all ports, 2010, 2019 and 2020 (million)

	2010	2019	2020
Italy	87.658	86.530	55.147
Greece	86.189	73.930	40.895
Denmark	41.993	44.226	30.859
Croatia	25.124	34.142	18.779
Germany	28.780	31.412	16.373
Spain (1)	21.518	34.324	14.283
Sweden	30.185	30.523	14.020
France	27.218	24.666	10.445
Estonia	11.186	15.057	8.623
Malta	8.300	13.591	7.955
Finland	17.867	19.188	7.357
Poland	2.601	2.787	1.905
Netherlands (2)	1.994	2.010	967
Portugal (3)	701	822	846
Ireland	3.089	2.688	814
Latvia	720	1.072	466
Norway (4)	5.755	6.403	1.898
Turkey	1.577	1.612	307
Lithuania	251	343	308
Belgium	829	1.092	69
Cyprus (5)	107	53	5
Slovenia (6)	39	26	0
Iceland (7)	638	827	247
Montenegro (8)		89	0

Table 2: Seaborne passengers embarked and disembarked in all ports, 2010, 2019 and 2020 (million)
(Source: Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php?title 2020)

In 2020, all EU Member States were severely impacted by the restrictions put in place in the EU and worldwide. Compared to 2019, all EU Member States, the EFTA countries Iceland and Norway, as well as the candidate countries Montenegro and Turkey registered substantial falls in the number of passengers passing through their ports.

The largest relative decrease in seaborne passengers transport was recorded by Slovenia (-99.5 %), where only 119 passengers were counted in 2020. The candidate country Montenegro also decreased by 99.5 %, with only 428 passengers in 2020. Belgium and Cyprus were the two other countries recording a fall of more than 90 % in 2020 compared to 2019 (-93.6 % and -91.1 % respectively). Among the remaining EU Member States, seven recorded a decline of more than 50 % over the same period. A similar trend was observed in Iceland, Norway and Turkey. For nine EU Member States, the drop was between 30 % and 50 %. Among all reporting countries, Bulgaria and Lithuania registered the lowest declines, albeit still substantial, with -26.4 % and -10.0 % respectively. Although the European ferry market is strictly divided into North and South networks, each with its own peculiarities, market strengths and weaknesses, as well as dynamics, the across the board picture paints an image of weak intra-European trade of manufactured components and all consumption goods. The hypothesis that other types of shipping, like containers, have partly substituted the RO-RO mode is untenable, simply because the whole of Europe's short sea shipping made 1,811 mln tn in 2015 (to and from the EU's main ports), less by 51 mln tn than in 2007. Anyway, trade has been falling for a long time, and despite the higher than in 2007-2008 level of consumption today, any overall rise depends on imports from outside the EU. The fall in households' leisure and fun budgets could be named as the chief culprit for decreasing passenger traffic, and this especially holds true for the Med. Other factors have their pennyworth as well, such as price convergence between neighbouring economies which renders shopping trips obsolete.[10]

4.1. Cruise passengers passing through EU ports

The number of cruise passengers passing through EU ports plummeted by 91.9 % between 2019 and 2020, to 1.2 million. Although cruise passengers represent only a small share of the total number of passengers embarked and disembarked in EU ports, these passengers play an important role in the ports and countries where the cruise traffic is concentrated. More than 84 % of the total number of cruise passengers embarked and disembarked in EU ports in 2020 did so in the ports of one of the three countries Italy, Spain and France.

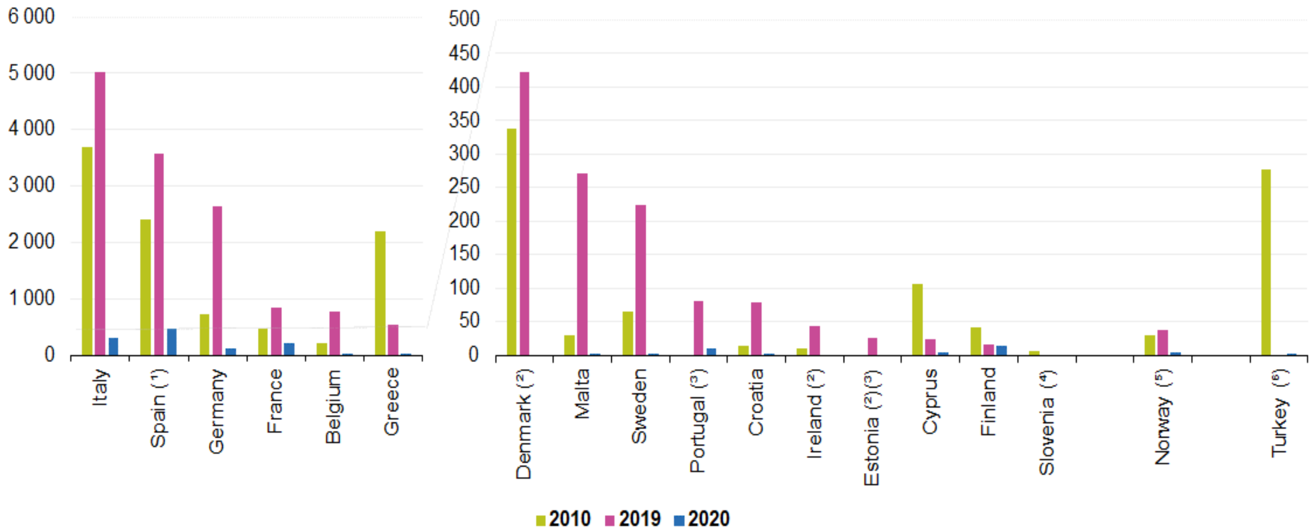

Figure 4: Seaborne cruise passengers embarked and disembarked in all ports, 2010, 2019 and 2020 (thousand)

[10] Ro-ro & Ferry Atlas Europe is a supplement to the monthly e-zine Harbours Review. European port sector forum available at www.harboursreview.com and via a subscription PUBLISHER Baltic Press Ltd, ul. Pułaskiego 8, 81-368 Gdynia, Poland

	2010	2019	2020
Italy	3.682	5.018	307
Spain (1)	2.407	3.584	475
Germany	725	2.647	110
France	474	839	208
Belgium	219	781	29
Greece	2.196	530	16
Denmark (2)	338	423	0
Malta	29	271	0
Sweden	66	224	0
Portugal (3)	0	82	11
Croatia	15	79	2
Ireland (2)	10	44	0
Estonia (2)(3)	0	25	
Cyprus	107	24	5
Finland	41	16	13
Slovenia (4)	6	0	0
Norway (5)	31	38	4
Turkey (6)	277		0,09

Table 3: Seaborne cruise passengers embarked and disembarked in all ports, 2010, 2019 and 2020 (thousand)
(Source: Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php?title 2020)

In 2020, cruise passengers were even more severely impacted by the restrictions put in place in the EU and worldwide. Compared to the previous year, only Poland recorded an increase in 2020 compared to 2019, from 179 cruise passengers in 2019 to 306 passengers in 2020 (+70.9 %). Denmark and Ireland did not report any cruise passengers in 2020 while there had 423 000 and 44 000 in 2019, respectively. Besides these two countries, Malta and Sweden recorded the highest falls in 2020 compared to 2019 (both -99.9 %). Among the remaining EU Member States, five declined by more than 90 % over the same period. For four EU Member States and Norway, the drop was between 75 % and 90 %. Among all reporting countries, Finland registered the lowest decline, albeit still substantial, with -15.3 %. With 631 000 cruise passengers, Spain was the main contributor to the EU seaborne cruise passenger traffic in 2020 (47 %). Italy, which is usually the main contributor, followed with 307 000 cruise passengers embarked and disembarked in 2020.

4.2. EU maritime ports

It is generally accepted that more than 90% of global trade is carried by sea. Worldwide exchanges with the EU depend mainly on maritime transport (75%) and via fixed connections. Thus, the Mediterranean Sea is amongst the world's busiest waterways. It offers a route for exchanges of manufactured products between Europe and Asia through the Suez Canal, Asia being EU's chief trade partner, as well as for the supply of energy products to Europe from the Gulf countries, and for the transfer of passengers transfers between and within Mediterranean countries. Intra-Mediterranean fluxes account for less than a quarter of total Mediterranean maritime traffic that is largely dominated by international fluxes.[11] Figure 5 shows the density of AIS (Automatic Identification System) signals of all vessels (including EU fishing vessels over 15m) in 2014. Major traffic routes are dominated by crude oil shipments (that originate from the eastern Black Sea, Northern Egypt, or from the Persian Gulf via the Suez Canal) and by container ship traffic. Together with the South-East Asia region, the Mediterranean Sea is one of the busiest regions in the world in terms of passenger transport.

[11] UN, https://www.medqsr.org/maritime-transport

In 2009, 212.4 million passengers embarked or disembarked in an EU Mediterranean port, accounting for more than half (53 %) of the total EU passenger seaborne traffic. The main ports where passengers embark and disembark are in Greece (42 % of total passengers) and in Italy (43.0 % of total passengers).

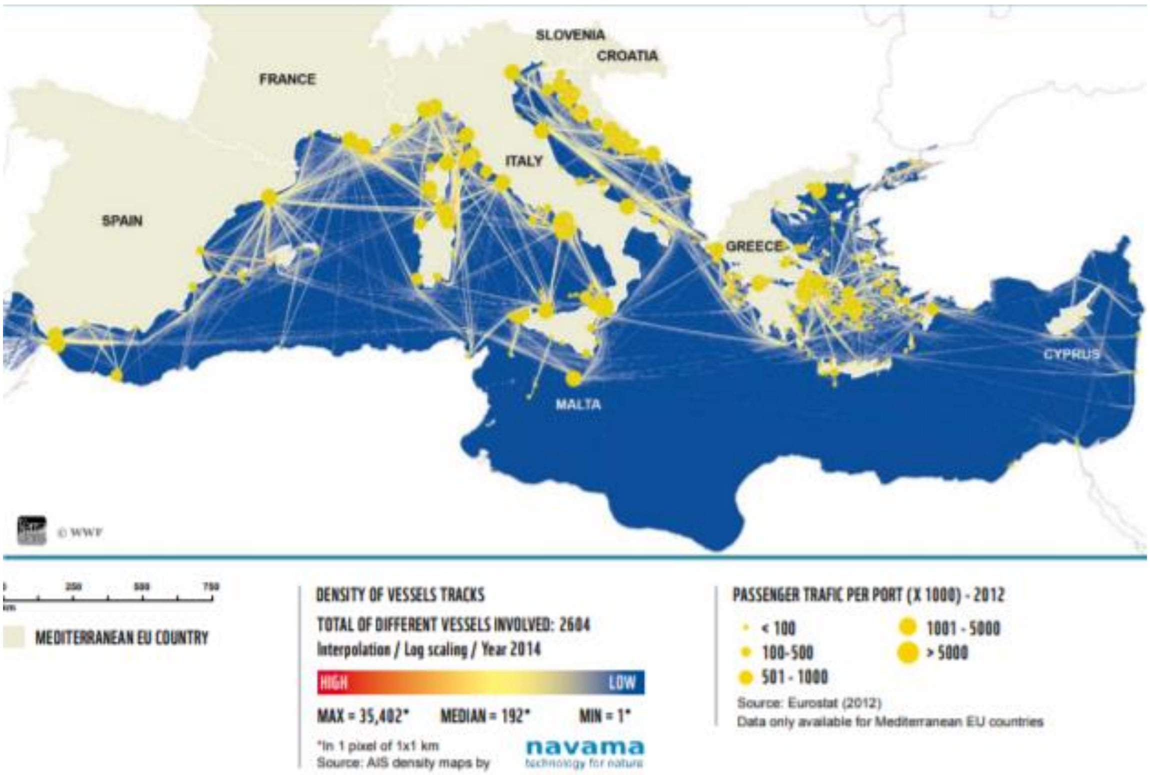

Figure 5: EU passenger seaborne traffic
(Surce: Piante, C., Ody, D.: Blue Growth in the Mediterranean Sea: The Challenge of Good Environmental Status. Med Trends Project. WWF-France, 2015., p. 192. https://d2ouvy59p0dg6k.cloudfront.net/downloads/medtrends_regional_report.pdf)

There are more than 600 commercial ports and terminals in the Mediterranean Sea. Almost half of them are located in Greece and Italy. Twenty one ports of the Mediterranean Sea are among the 100 world top ports, in terms of port calls (Barcelona, Leghorn, Genoa, Gibraltar), deadweight tonnage (Gibraltar, Fos, Algeciras, Gioia Tauro), container flows (Valencia, Algeciras, East Port Said, Tanger) or cargo volume (Marseille, Algeciras, Valencia, Genoa, Trieste). Ports for liner passenger transportation are of general social interest. For this reason, they are mostly managed by the state. Fluctuations in the intensity of traffic, especially in the seasons with high tourist traffic, are also very present, which often leads to difficulties in doing business in certain ports, which then cannot be realized under market conditions. The areas with the strongest ferry traffic in Europe are:

1) the Scandinavian countries, with Norway being the most developed area, with a waterway of approximately 2,500 Nm touching 34 ports;
2) England and France, respectively the La Manche canal;
3) Italy, especially the connection between the island of Elba and Sicily, and the ferry connections between Italy and Greece;
4) Greece and Croatia, with an extremely high number of ferry connections to link the islands with the mainland and vice versa, due to the long and highly articulated coastline (with an articulation coefficient of 1.1).

Based on the above, it was expected that the main passenger ports would be developed in these areas, such as the port of Calais in France, which is also the largest passenger port in the world. Then the port of Piraeus in Greece should be highlighted as the largest European ferry port. Swedish ports are also important. The port of Stockholm is the largest passenger port in the Baltic Sea, and the Italian port of Genova is the largest ferry and passenger port. The busiest sea route in the world is La Manche (the English Channel), which connects Britain with mainland Europe and passes mainly through French ports. Passing through the English Channel, the ports of Calais, Boulogne, Dunkirk, Dieppe, Cherbourg-Octeville, Caen, St. Le Havre are often visited. It is also worth mentioning the ferries sailing from the UK to Belgium, Denmark, the Netherlands, Norway, Spain and Ireland. The busiest ferry route is the Øresund route, which connects Helsingborg in Sweden and Elsinore in Denmark. More than half of passenger sea traffic is domestic traffic, i.e., traffic between ports within a given country. Countries with many islands and a large number of ferry lines therefore often have quite a lively passenger shipping market. Among EU countries, Italy and Greece, followed by Malta and Portugal, are the leading countries in passenger maritime transport in the EU. [12] Maritime passenger transport is of great importance to the European Union, as this form of transport facilitates daily life and has a great impact on the development of the entire tourism system. Of the 20 largest passenger ports in the world, 13 are located in Europe. [13] The top 20 passenger ports accounted for more than 36 % of the total number of passengers embarked and disembarked in the reporting countries in 2020.

Figure following on the next page

[12] Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Transport_statistics_at_regional_level
[13] Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Transport_statistics_at_regional_level

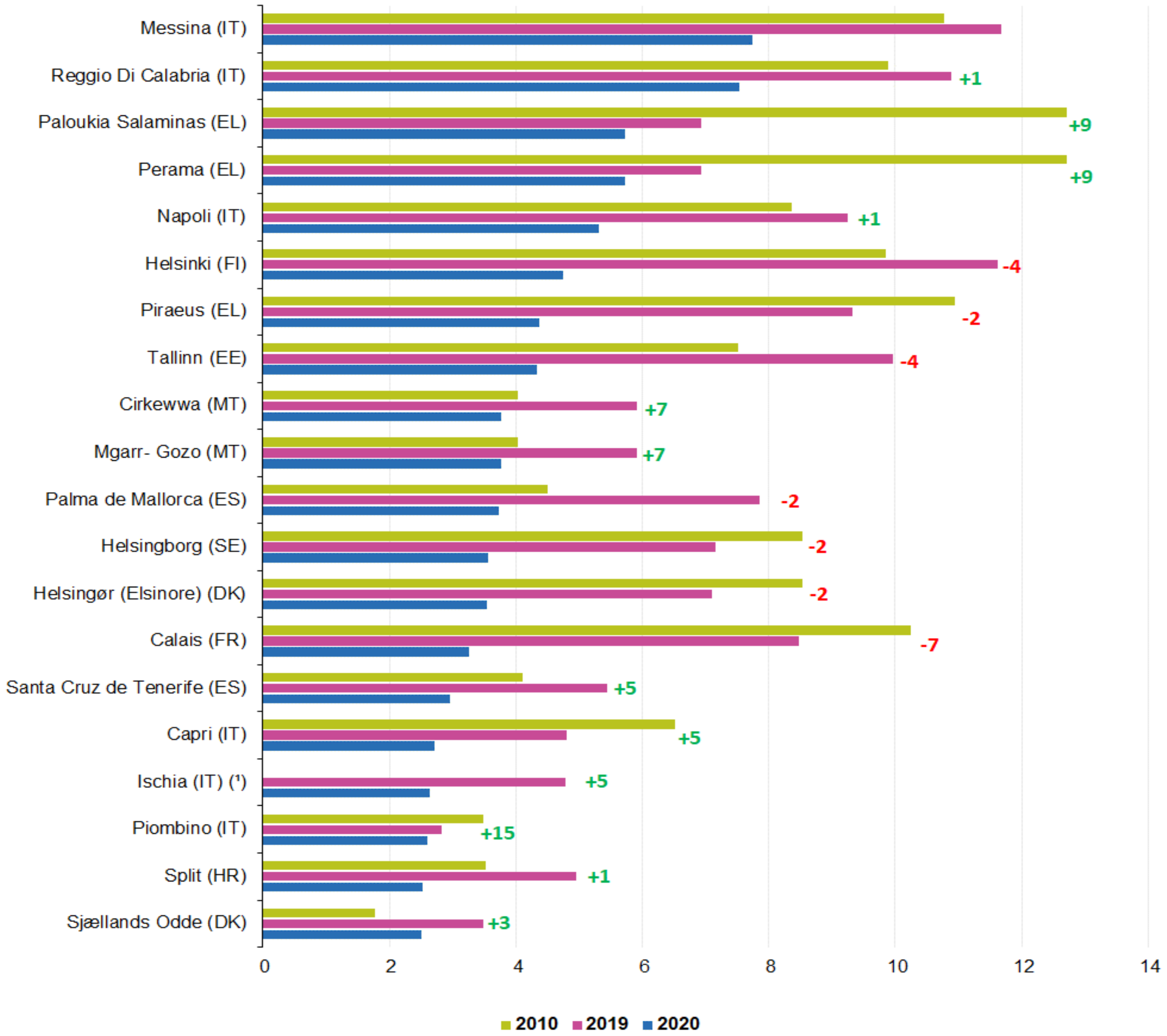

Figure 6: Top 20 EU maritime ports embarking and disembarking passengers, 2010, 2019 and 2020 (million)

Table following on the next page

		2010	2019	2020	
1	Messina (IT)	10 765	11 669	7 737	Mediterranean sea
2	Reggio Di Calabria (IT)	9 891	10 884	7 528	Mediterranean sea
3	Paloukia Salaminas (EL)	12 705	6 939	5 730	Mediterranean sea
4	Perama (EL)	12 705	6 939	5 730	Mediterranean sea
5	Napoli (IT)	8 356	9 257	5 318	Mediterranean sea
6	Helsinki (FI)	9 849	11 619	4 754	Baltic sea
7	Piraeus (EL)	10 944	9 331	4 370	Mediterranean sea
8	Tallinn (EE)	7 523	9 961	4 331	Baltic sea
9	Cirkewwa (MT)	4 031	5 918	3 774	Mediterranean sea
10	Mgarr- Gozo (MT)	4 031	5 918	3 774	Mediterranean sea
11	Palma de Mallorca (ES)	4 496	7 848	3 726	Mediterranean sea
12	Helsingborg (SE)	8 540	7 153	3 562	Baltic sea
13	Helsingør (Elsinore) (DK)	8 534	7 105	3 548	Baltic sea
14	Calais (FR)	10 237	8 478	3 269	North East Atlantic Ocean
15	Santa Cruz de Tenerife (ES)	4 110	5 448	2 964	North East Atlantic Ocean
16	Capri (IT)	6 517	4 796	2 714	Mediterranean sea
17	Ischia (IT) (1)		4 788	2 645	Mediterranean sea
18	Piombino (IT)	3 477	2 827	2 594	Mediterranean sea
19	Split (HR)	3 523	4 958	2 523	Mediterranean sea
20	Sjællands Odde (DK)	1 777	3 493	2 506	North sea

Table 4: Top 20 EU maritime ports embarking and disembarking passengers, 2010, 2019 and 2020 (million)
(Source: Eurostat (mar_mp_aa_pphd)

The port of Messina remained the largest EU passenger port in 2020, with 7.7 million passengers (Figure 6). All ports of the top 20 decreased substantially in 2020 compared to 2019. Calais recorded the highest fall in 2020 compared to 2020 (-61.4 %), dropping seven positions in the ranking. Among the remaining ports, six declined by more than 50 % over the same period. For nine ports, the drop was between 30 % and 50 %. For three ports, the drop was between 15 % and 30 %. Among the top 20 ports, Piombino registered the lowest decline, albeit still substantial, with -8.3 %. Compared to 2020, four ports entered the top 20: Capri, Ischia, Piombino and Sjaellands Odde.

5. CONCLUSION

Considering technological, as well as organizational and economic criteria, one of the most important types of maritime shipping is passenger shipping, which can be further divided into liner shipping and tourist shipping. Cruises are counted as part of tourist passenger shipping. Coastal liner shipping is a special form of maritime shipping that uses special ships, like the RO-RO passenger ships, catamarans and classic passenger ships for the transport of passengers and vehicles. Passenger shipping can be divided into liner and cruise shipping, where liner shipping plays an important role in connecting the islands to the mainland and the islands among themselves, and the island economy, while cruise shipping is important for the satisfaction of the tourist needs. However, regular passenger transport, alone or in cooperation with other forms of transport should play a particularly important role in the development of coastal tourism. Liner passenger transport is a prerequisite for the development of island tourism. Quality and customer satisfaction are important constructs for future behavioral intentions. In conclusion, this study suggests that business managers in the passenger shipping sector need to incorporate services that will positively influence and increase customer satisfaction.

An important prerequisite for the functioning of the passenger shipping, and the precondition for satisfying the needs of the consumers, are passenger ports which more or less attract the passengers with their services and diversity they offer. Maritime passenger terminals for domestic and international traffic have to be equipped for the purposes of liner shipping, for the ferry transport, and provide easy navigation for the cruise ships as well. Ports represent a major economic strength and hold an important position in national economy and international passenger trade. Maritime passenger transport is of great importance to the European Union but it was severely hit by the COVID-19 pandemic in 2020, decreasing by 45.0% compared to 2019. The total number of passengers embarked and disembarked in EU ports was 230.1 million in 2020. Of the 20 largest passenger ports in the world, 13 are located in Europe and among them, Italy remained the largest maritime passenger transport country in Europe in 2020.

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REGIONS WITH GEOGRAPHICAL SPECIFICITIES AND TERRITORIAL COHESION IN THE EUROPEAN UNION

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ABSTRACT

European Union (EU) represents an integration with valuable diversities, but there are areas with significant development constraints and specificities. Cohesion policy of the EU has recognized that territories with specific characteristics deserve tailored approach in policy making, which can also contribute to achieve higher cohesion. Scientific researches and expert analysis have confirmed the need to observe different territorial types in investigating territorial cohesion, one of the goals of the EU's cohesion policy. The main aim of this study is to present the characteristics of the regions with geographical specificities, mountains, islands, outermost regions, sparsely populated areas in the EU, highlight their development constraints and potentials. The opportunities of the regions with geographical specificities are addressed and analysed in the framework of the territorial cohesion and support of the EU funds and reconsidered in accordance with the objectives of the EU cohesion policy in the new programming period. Even though geographic factors represent significant barriers, the observed regions have unique assets which can be used to realise better development results and territorial cohesion. The results of the study can be useful in choosing the appropriate approach to preserve territorial specificities and to strenghten its development potentials as advantages of the specific regional areas, as well as for the studies that analyse the contribution to the Territorial Agenda 2030. The paper also gives comments on the opportunities to achieve higher economic diversifications which can be important for the countries that mostly depend on several economic sectors and have underdeveloped potentials.

Keywords: *Cohesion policy, Geographical specificities, Regions, Territorial cohesion*

1. INTRODUCTION

Resources and factors that characterize different types of regions of the European Union (EU) represent diversity, development potentials and wealth, but some areas have specificities that are barriers which can have implications on its socio-economic development. The EU cohesion policy promotes social, economic and territorial cohesion as important goals. It includes these aspects in policy objectives, policy making, develops instruments which are directed towards various types of regions, but there is still a need to continuosly monitor the existing approaches and to complement measures in order to achieve better results for the areas with geographical and development specificities. Namely, even though there can be found differences within the same group of regions and can be determined examples of good practices (better development results for some of the regions with geographical specificities), numerous areas are still facing significant issues, depopulation, isolation and other development hurdles and traps. Another question of special interest is an opportunity which these areas have for strengthening competitiveness, regional and broader socio-economic development due to their specificities in comparison with other regions. The goal of territorial cohesion is based on diversity of places, its potentials and concerns. This can also be connected with the competitiveness potentials or the combination of territorial specific factors that diversify the regions from the rest of the territory. The aim of this study is to analyse and give a review on the characteristics (potentials and constrains) of the regions with geographical specificities, mountains, islands, outermost regions, sparsely populated areas in the EU.

The elaboration will be connected to the framework of the EU cohesion policy and territorial cohesion. The next chapter gives a review on the specificities of the observed areas while the third chapter connects potentials for strengthening competitiveness and to achieve territorial cohesion in these regions. Final chapter refers to conclusions and policy implications.

2. CHARACTERISTICS OF THE REGIONS WITH GEOGRAPHICAL SPECIFICITIES IN THE EUROPEAN UNION

Europe has many types of places, such as different urban areas, rural areas, peripheral areas, sparsely populated areas, islands, coastal areas, mountainous areas, border regions, macro-regions, outermost regions and areas that have problems with demography or are faced with the transformation and transition processes (Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion, 2020). Territorial diversity of Europe is also very well described at the beginning of the Green Paper on Territorial Cohesion*: „From the frozen tundra in the Arctic Circle to the tropical rainforests of Guyane, from the Alps to the Greek island, from the global cities of London and Paris to small towns and villages dating back centuries…"* (Commission of the European Communities, 2008, p. 3). Numerous other investigations and reports confirm the differences in the territorial impacts (e.g. climate change impacts, vulnerability to crises, the impact of global changes etc.), that can be connected with the geographical position and territorial, regional-specific characteristics of the European regions, as well as with their ability to respond to these impacts (Gorghiu et al., 2020; Federal Institute for Research on Building, Urban Affairs and Spatial Development, European Territorial Observatory Network and Gauk, M., 2020). Bachtrögler, Fratesi and Perucca (2020) confirm the importance of territorial contexts for the impact of the EU cohesion policy. Researches recognize that European heterogeneity can be a challenge to achieve EU objectives and the need to use different regional typologies for the policy implementation, in the distribution of resources, which will contribute to the goals of economic, social and territorial cohesion (Cotella, Janin Rivolin, Pede and Pioletti, 2021). Regional typologies are extracted in defining development differences in numerous studies. Geographical factors represent differentiators, while location (mainland, island, coastal area, border, mountain, outermost areas) defines different typologies of regions, cities and functional areas (European Commission, 2022d). Synthesized explanation of territorial typologies within the EU, connected with available subnational statistics can be found in Angelova-Tosheva and Müller (2019). Mountain regions, islands, outermost and sparsely populated regions represent regions with geographical but also development specificities. About 17% of the EU population live in mountain areas, which cover about 30% of the EU area (European Commission, 2019). Some mountain areas straddle different countries, represent border regions, with a significant share of the people which live in rural regions. Mountain regions have strengths such as natural areas and cultural wealth, some of them have good transport links because represent tourist destinations, but there is a problem of connectivity. These areas are rich in biodiversity, produce specific agricultural goods and handicrafts (Commission of the European Communities, 2008; European Commission, 2019). Challenges are determined due to climate change, limited number of economic activities and access to quality services such as health, social and educational services. The availability of these services also varies between regions. Here can be seen problems connected with small or far markets and the need for better digital connectivity, weak research capacities and human capital, negative effects of tourism pressures or in balancing tourism growth and environmental protection, together with risks of losing natural potentials and biodiversity. Potentials for mountain regions are in agriculture (production of quality agricultural products, with protected designation of origin), sustainable tourism development (including ecotourism) and in developing low-carbon and circular economies (Commission of the European Communities, 2008; European Commission, 2019).

EU funded projects can help to reduce development issues in the regions with geographical specificities. Mountain regions need projects focused on the management of natural resources, resource efficiency, connected with the efforts to minimise the impacts of climate change on economic activity, on the innovative practices which will help to adapt to climate conditions, projects related to green infrastructure, new businesses, upgrading the quality of life and in creating communities as more attractive places to include younger people, on sustainable tourism, environmental protection, cultural and mountain mining heritage. It is also necessary to deal with seasonality (e.g. through projects that are directed to develop selective tourism). Island regions, rich with natural wealth, include some of the outermost regions and in many cases are mountainous regions. Here should be highlighted that these areas characterize diversity (e.g. regarding population, GDP per head and GDP growth, diversification of sectors), which must be included in making generalisations and policy actions directed to the islands. Many island regions have problems with accessibility, high costs of basic public service provision, energy supply, small market, barriers to economies of scale, specialise in one or just few fields. As mentioned in European Commission (2019), the islands are faced with the risk of climate-change related problems (e.g. drought, rising sea levels, land erosion) and are dependent on the mainland expensive fossil fuels (even though they define goals of becoming self-sustaining though wind, tidal and solar power). Mediterranean tourism has obstacles connected with mass tourism, while the islands which do not have strong tourism have significant development problems. Different approaches should be used to tackle the diversities of islands, where can help EU tools such as EU funds and other connected instruments. The funds can be invested in local production, infrastructure, business development, promoting research and development, projects that will be focused on the supply and management of resources, eco-friendly use of natural resources by the green energy sector and circular economy, blue economy, projects that will improve access to public services, sustainable tourism. In France, Guadeloupe, French Guiana, Martinique, Mayotte, La Réunion and Saint-Martin, in Portugal, the Açores and Madeira and in Spain the Canary Islands, represent the EU outermost regions, which are geographically very distant from the European continent. They have 4.8 million citizens (European Commission, 2022b). These regions have constraints because of remoteness, small size, vulnerability to climate change (that affects their ecosystems and biodiversity), natural disasters, economies dependent on a few sectors and insularity. This produces problems with skills, unemployment and early school leaving. Some outermost regions experience also strong migratory pressures (European Commission, 2020; European Commission, 2022a). From the other side, as described in European Commission (2020), EU outermost regions are islands and archipelagos, except the land territory, French Guiana (Latin America), and represent valuable location for space and astrophysics activities, have rich, unique biodiversity and maritime economic zone. Their position gives added value to these regions, because represent connections with the other continents, but the remoteness is also one of the main problems in their development. Outermost regions have the potential to use: biodiversity, (marine) renewable energy sources and develop blue economy, sectors such as agriculture, blue tourism. Blue economy is recognized as an important segment in tackling climate change. The unique biodiversity of the outermost regions is emphasized in Green Deal, where climate change is one of the key aspects of the biodiversity loss. Outermost regions should promote their local products, protect local habitats and endemic species, biodiversity, use EU financial sources and instruments, as well as their own strategies to strengthen agriculture sector (quality and innovation in local production), to achieve the transition to a circular economy (including waste management, sustainable production and consumption), support renewable energy and energy efficiency, including local communities, whose role is important especially in isolated territories. By initiatives such as "Clean energy for EU islands", outermost regions can develop strategies and projects on clean energy (European Commission, 2020). Improving skills is essential to enhance employability, while it would be useful/necessary to increase the level of digitalisation and connectivity, promote the scientific exploration of maritime spaces, improve the knowledge of fisheries and marine areas. Many mountainous regions and islands are sparsely populated. Sparsely populated regions include rural and almost all border regions (Commission of the European Communities, 2008). Besides northernmost regions and regions in the Mediterranean, there are also regions of south and central eastern Europe that have become sparsely populated because of urbanisation and out-migration (European Commission, 2019). Based on the Commission of the European Communities (2008) and European Commission (2019), some of the main problems are their isolation, low density, ageing that consequently reduces the size of the labour force, structural problems in the labour market, youth unemployment, peripherality, structural weakness such as depending upon primary industry, income and productivity hurdles. Advantages in these areas can be seen in potentials connected with agriculture, fisheries and aquaculture, forestry, mining, tourism, energy production, uniqueness related to indigenous communities and potential to develop culture and tourism. These regions should use EU instruments to create and finance projects directed to (local) entrepreneurship, facilitating access to external market and new forms of economic activity and jobs (e.g. in areas such as ICT-related services, tourism, manufacturing, food production), to reduce the problems of remoteness, towards greater use of e-technologies, e-services, access to education, social and health services, project that will connect indigenous communities with regional development and preserve cultural heritage sites. More about geographic specificities of mountains, islands and sparsely populated areas can be found in Carbone (2018) and European Commission (2022c), while more about outermost regions and the European Strategy for the Outermost regions, can be found in European Commission (2022a, 2022b). Candau and Rey (2014) present some of the challenges connected with the international trade in outermost regions. In the new communication *"Putting people first, securing sustainable and inclusive growth, unlocking the potential of the EU's outermost regions"* (European Commission, 2022a), the following actions are highlighted to foster a sustainable recovery and growth of the outermost regions: actions to improve living conditions, quality of life, address poverty and develop youth opportunities, building on each regions' unique assets, supporting a sustainable, environmentally friendly, climate-neutral economic transformation, that is based on a green and digital transition, strengthening outermost regions' regional cooperation. Presented regions with geographical specificities are an important part in the regional policy implementation. This is seen through EU cohesion policy creation, legislation, tools and funding that can help to achieve stronger competitiveness and territorial cohesion.

3. POTENTIALS OF TERRITORIAL COMPETITIVENESS AND TERRITORIAL COHESION IN THE REGIONS WITH THE GEOGRAPHICAL SPECIFICITIES

Territorial cohesion through its different aspects implies that all diversified European territories, must have equal access to goods and services and other living and working conditions that are important for decent life. The focus is to achieve more balanced development where "people are able to make the most of the inherent features of the areas in which they live" (European Commission, 2022e). Territorial cohesion is recognized as goal in 2021-2027 EU cohesion policy, where instruments of EU cohesion policy are observed in relation to the possibility to help in achieving this objective. This confirms the importance of territorial cohesion in development framework of the EU. Territorial Agenda 2030, adopted at the end of 2020, highlights the territorial dimension of policies, promotes and helps to adapt to territorial challenges and contribute to sustainable development goals (Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion, 2020; European Commission, 2022d).

Another well-known segment of European policy is competitiveness (EU is compared with other countries, global competitiveness leaders, EU member states, regions within countries observe and benchmark their competitiveness). The concept of competitiveness is an important part in the development of economies at different range of territorial scales (Wilson, 2008). Filó, C. (2008, p. 1) defines a territorial unit as "a (socio) geographical integration market by a huge internal cohesion, a fundamental entity of our days." According to the same author, territorial competitiveness is based on the area's resources, overall coherence with different institutions, business sectors that are connected with innovation dynamic and cooperation with other areas. Competitiveness determinants represent development potentials that should be combined, used to achieve higher competitiveness and EU policy goals, such as economic, social and territorial cohesion. According to European Commission (2019), mountains, island and sparsely populated areas represent "Europe's jewels, packed with potentials". Very often these areas are rich with natural and cultural wealth, biodiversity and other resources, produce specific goods. Regions in this group that are tourist destinations also create important income and jobs, some of them have potentials in key future-focused sectors. But, as described in the previous chapter, these regions have significant growth and development limitations. There are numerous confirmations that EU cohesion policy can help reduce the barriers, to address and use the unique potentials, strengthen territorial competitiveness and achieve territorial cohesion. The EU cohesion policy has elements that address specific territorial problems. From the beginning, territorial cohesion was directed to the diversity of places and harmonious territorial development. Different examples use place-based approach instead of single-sector and top-down approach and present positive results. Cohesion Policy was recognized as an enabler and catalyzer of territorial strategies (European Commission, 2015). Dax (2008) presents that territorial cohesion is important goals for the mountain regions. European Commission (2020) explains that the Treaty of the Functioning of the EU provides for specific measures to support outermost regions. These specific measures can be seen in tailor-made conditions for the application of the EU legislative framework and in accessing the EU programmes. In different communications of the Commission it is highlighted that it tries to strengthen the partnership with the outermost regions and helps in their development, e.g. to address climate change, protect biodiversity, promote circular economy and boost renewable energy. The Commission also gives concrete proposals with the included specificities, e.g. proposes to invest funds in key sectors, to include these aspects in the strategic documents and policy implementation, promotes trade agreement for the key sectors. It observes and communicates on the outermost needs (e.g. climate change adaptation needs were reflected in the LIFE programme's 2019 call for proposals, based on European Commission, 2020). Events, forums, public consultations, citizen dialogues were organised to support the regions in their growth strategies. Efforts are made also in data collection at these regions' level to support adapted policy-making. Evaluation of the cohesion policy interventions in specific territories for the 2000-2006 and 2007-2013 (Analysis for Economic Decisions, 2012), on the example of chosen regions, confirms that geographical specificities matter (where "islandness" and sparsity pose the most challenges, followed by remoteness, demographic challenges etc.) and that EU financial instruments (e.g. European Regional Development Fund and Cohesion Fund) have significantly contributed to develop and implement a range of projects. Policy approaches are better coordinated through multi level governance. Armstrong, Giordano, Kizos, Macleod, Olsen and Spilanis (2012), Giordano (2017) confirm the role of the European Regional Development Fund for regions that have specific geographical features. Carbone (2018) presents how EU member states use the possibilities of EU cohesion policy in the 2014-2020 programming period in mountains, islands and sparsely populated areas. It is confirmed that territorial challenges are included in the important strategic documents and that these areas use different tools to respond to these challenges, but also that it is necessary to improve this during programming and at the implementation level. The study highlights the need to pay special attention to the territories with geographical specificities in the next programming period. There are also studies (e.g. Karelakis, Loizou, Chatzitheodoridis and Mattas, 2020), which investigate impacts of the other EU programs and present marginal effects (on the example of islands), that implies the need to investigate the implementation in more detailed. In the programming period 2021-2027 the EU continues to support Europe’s mountains, islands, outermost and sparsely populated areas. Based on Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion (2020), Territorial Agenda 2030 is related with the global and European development goals, framework for the new EU Cohesion Policy 2021-2027, Urban Agenda for the EU, Just Transition Mechanism, the Union Recovery Programme etc. Territorial priorities for Europe include also goals such as Just and Green Europe, Europe closer to citizens. Important EU strategic guidelines and documents, such as European Green Deal, Sustainable Europe Investment Plan, Just Transition Mechanism, offer the opportunity to promote synergies between Territorial Agenda and EU strategies and policies, to use diverse potentials of all places (Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion, 2020). Specific provisions are included in EU legislation related to the implementation of the EU cohesion policy. Coordination between sectoral and territorial policies is needed to maximise synergies. Some of the regions with special characteristics have lower competitiveness results (Annoni and Dijkstra, 2019). Competitiveness potentials can be seen in their specific assets that will be developed through EU cohesion policy implementation. Cohesion policy measures are tailored according to regional specificities and regions should use innovative instruments to strengthen its capacities to implement desirable projects and goals. Lampropoulos (2020) describes how territories with geographical secificities are connected with the policy objectives of the EU cohesion policy (smarter, greener, more connected Europe, more social Europe and Europe closer to citizens). Policy objective Europe closer to citizens gives opportunities to EU countries and regions with geographical specificities to use a wide range of tools on a local level. Territorial strategies, together with the EU funds and cooperation programmes can lead to better development results.

4. CONCLUSIONS

Territorial characteristics and different typologies of regions represent an important part in the EU cohesion policy creation and implementation. The paper presents and confirms the unique assets of the regions with geographical specificities, that can be the basis for strengthening territorial competitiveness and achieving territorial cohesion. The main characteristics of the mountains, islands, outermost regions and sparsely populated areas in the EU are synthesized in this paper, while more complex researches are needed that will focus on each of the mentioned typologies and evaluation of the EU cohesion policy implementation. Support of the EU instruments and tailored solutions give opportunity for financing and cooperation, knowledge sharing and upgrading, that are necessary to implement projects directed to reduce barriers, preserve territorial specificities and use advantages of these areas. Determining underdeveloped potential, protecting biodiversity, promoting local production of high quality products, higher economic diversification through various sectors, reducing connectivity issues and climate change impacts represents some of the aspects that should be included in future development guidelines. These areas can become positive examples in developing blue economy and transition to renewable energy. Here must be also highlighted the need to analyse diversities within observed groups of regions because the challenges are not uniform. Specific resources should produce the best possible outcomes, but having in mind sustainable, socio-economic-environment aspects. In order to achieve sustainable territorial cohesion it is necessary to apply adequate, integrated approaches, that will connect goals such as inclusive, just and green Europe, motivate the cooperation between different levels of governance, balance competitiveness and cooperation, use different EU funds and instruments to finance and implement projects, while unleashing territorial potentials. Priorities set in the strategic documents need to be supported by actions. EU member states and regions (especially those that have a significant number of units with geographical specificities) should include these aspects in policy creation, target these areas in the concrete strategic guidelines and to monitor and evaluate the implementation of possible solutions that will strengthen their specific territorial competitiveness and achieve better cohesion.

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FOSTERING INNOVATION AND SUSTAINABILITY IN BUTHAN'S NETZERO ECONOMY

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ABSTRACT
Despite we're living in the digital age with easy access to information, many citizens, particularly in the 'western world' are unaware of the geographic location and unique development vision of the Kingdom of Bhutan. Bhutan is currently a carbon neutral country. In fact, Bhutan is a carbon absorber thanks to its dense forest, being able to neutralize the carbon emissions of neighboring countries. Another interesting fact is that Bhutan is pointed out by the United Nations as a successful example of the implementation of the Sustainable Developments Goals. The aim is to learn more about the Kingdom of Bhutan and to understand how it has protected its public space, in the sense of its relative isolation from the rest of the world, and how it has managed to introduce innovation policies to accompany global development and promote economic development, without this having a negative impact on its social, cultural and environmental ecosystems. This exploratory study is anchored in the qualitative methodology, using reading and observation as main content analysis techniques. The study allowed us to conclude that the case of Bhutan is inspiring in several ways, in particular on what the purpose of society should be towards nature and how countries can come to measure success beyond Gross Domestic Product. Bhutan also illustrates that it is possible to implement innovative visions as long as there is political will.
Keywords: *Bhutan, Innovation, Nature, Public Space, Sustainability*

1. INTRODUCTION

Bhutan is currently a carbon neutral country. In fact, Bhutan is a carbon absorber thanks to its dense forest, being able to neutralize the carbon emissions of neighboring countries. Another interesting fact is that Bhutan is pointed out by the United Nations as a successful example of the implementation of the Sustainable Developments Goals. The aim is to learn more about the Kingdom of Bhutan and to understand how it has protected its public space, in the sense of its relative isolation from the rest of the world, and how it has managed to introduce innovation policies to accompany global development and promote economic development, without this having a negative impact on its social, cultural and environmental ecosystems. The work began with the conceptual analysis of public space, innovation and sustainability. Then a data collection was carried out to present a brief description of the country and its customs, complemented by the analysis of some examples of innovation and sustainability strategies defined by the Government of Bhutan. Finally, we proceeded to study the evolution of tourism in Bhutan and how a strategy for the sector has proven to be a way of preserving the environment. As this is an exploratory study, within the scope of social sciences, the methodology used was the reading from the perspective proposed by Quivy and Campenhoudt: "selecting a small number of readings and organizing them to get the most out of them" (Quivy & Campenhoudt, 1995, p. 51), observation and qualitative analysis we also applied. Remaining relevant to the academic environment, but not exclusively, it is understood that this paper contributes to the current discussions on how urgent it is to think about development, mainly the economic one, promoting innovation and simultaneously launching sustainability measures focused on citizens and on the protection of the huge public space that is planet Earth.

2. LITERATURE REVIEW

Regarding the theoretical framework, the study was anchored on the concept of public space, presenting several conceptions of keynote authors, and the concepts of innovation and sustainable development in particular at the level of organizations, without delimitation in the public (governmental) *versus* private relationship.

2.1. Public Space

The word 'space' is associated with a variety of contexts helping to construct its meaning according to each of these contexts. This happens, as Harvey (2003) points out, in relation to 'material', 'metaphorical', 'liminal', 'personal', 'social' or 'psychic' space, to give just a few examples. The same author argues that space proves to be "an extraordinarily complicated keyword (...) but that is precisely what makes this term, particularly when associated with time, so rich in possibilities" (Harvey, 2003, p. 37). Thus, this wealth of possibilities may also apply to the public space. Public space is only one part, the physical manifestation of the public realm (Thomas, 1991). However, it plays an important role in sustaining the public realm (Sennett, 1971; Thomas, 1991; Lofland, 1998). Recent research in urban studies indicates that public space in today's times is important in generating, magnifying and sustaining a sense of community (Boyer, 1994; Hayden, 1995). In this sense, it is considered that public space is, above all, social, and in it there are relations of production, relations which frame power relations in public spaces, buildings, monuments, works of art, and others. This is a vision advocated by Lefebvre; in his opinion public space has three characteristics underlying the spatial structure of the urban public sphere:

a) spatial practices, encompassing production and reproduction, specific places and spatial sets characteristic for each social formation, ensuring continuity within a framework of relative cohesion;
b) representations of space, linked to production relations, the imposed order, knowledge, signs and codes, frontal relations;
c) the spaces of representation, presenting complex symbolisms, expression of the clandestine and underground side of social life, but also of art (Lefebvre, 2000).

When analyzing the urban public space, form and content are inseparable, and the difficult articulation between the real aspects of the urban public sphere and those of a more abstract nature, which denounce its intersubjective character (Serpa, 2004). As, indeed, happens in relation to absolute and relative space. From this point of view and based on the vision of Lefebvre, Harvey (2003) presents a conceptual map based on a tripartite division between absolute, relative and relational space-time in relation to the tripartite division between experienced, conceptualized and lived space. For Mitchel, public space "is material" and "constitutes a place or a terrain on which and from which political activity emerges" (Mitchel, 2003, pp. 129-135). It is only when the relation connects to the absolute space and time of social and material life that politics becomes alive. To neglect this connectivity is to condemn politics to irrelevance (Mitchel, 2003). Hence, as Queré argues, the concept of public space is at the heart of current philosophical reflection on democracy, it provides a common thread to imagine solutions to the institutional crises of so-called 'complex' societies; one can also include in this reflection the use of the concept for the purposes of the 'critique of ideologies' (Queré, 1992). For Habermas, the public space would be the place *par* excellence of communicational action, the historically constituted domain of democratic controversy and of the free and public use of reason (Joseph, 1998). Habermas's conception of public space presupposes the critical and rational use of intercomprehension, or the use of a communicational rationality with the aim of intercomprehension (Silva, 2002).

In the public space practical and political issues are discussed, as Isabel Babo-Lança says about "public space and publicity - considerations around public space, visibility and publicity. According to the author, this is why "the public space is itself understood as the place where these issues are discussed". Also, according to this author, Habermas's "theory of public space is therefore a theory of democracy. Its main categories are those of publicness, opinion formation and argumentative communicability" (Lança, undated, p. 1). In Arendt's work, the public space is considered the place of political action and the expression of non-identitarian modes of subjectivation, in contrast to family territories and community identification - in conceptual terms, political action is an activity that immediately proves the plurality of the human condition. According to Serpa, Arendt follows the Kantian and Aristotelian tradition in rethinking political action from the capacity of judgment and the power of discernment of each human being; something interchangeable from the possibility of communication between individuals, which confers an intersubjective character to the public sphere, expanded from the confrontation of (different) ideas and actions (Serpa, 2004). For Arendt, the public sphere does not concern only the concrete spaces of circulation and distribution of flows, nor the material spaces of consumption, leisure and entertainment. It is the public sphere that unites (and may also separate) the community: "what makes mass society so difficult to bear is not the number of people it comprises, or at least this is not the fundamental factor; rather, it is the fact that the world between them has lost the power to hold them together, to relate them to each other and to separate them" (Arendt, 2000, p. 62). This point was considered important to establish the articulation of the public space with the common world. As Lança states, "the public domain is not the common world, but the common world is that where the space makes sense" (Lança, undated, p. 4). According to the author, it is necessary to "understand that the common world is the condition for the possibility of a *polis*, of the institution of a public space and, at the same time, that it is only the institution of this space that makes a common world possible, that it is only in the condition of a public domain that the world can be common" (Lança, undated, p. 4). Here, "the public good takes on meaning to the extent that it gives rise among men to a common world, which gives them a place or, more exactly, makes room for it" (Lança, undated, p. 5). This perspective is based on Étienne Tassin's view that "the public good is not the appanage of any particular community, it cannot consist in the affirmation and preservation of an alleged community identity: the public good is the preservation of the political space of appearance and visibility which gives rise to a common world. Freedom, equality and justice are its conditions of possibility" (Tassin, 1991, pp. 34-36). This work aims precisely to highlight the preservation of the common world, naturally constituted by the various characteristics presented; for this preservation it is essential that society produces and implements innovation and sustainability policies targeting the preservation of the common world.

2.2. Innovation

Innovation is key to improving living standards and can affect individuals, institutions, all economic sectors and countries in multiple ways (OECD, 2018). According to the Oslo Manual, innovation "is the implementation of a product (new or significantly improved, or a process (or the combination of both), that differs significantly from those units' previous products or services and that have been made available to potential users (of the product) or implemented by the units (processes)" (OECD, 2018, p. 20). Innovation can apply to all sectors and start from one or several individuals. Large companies tend to be the organizations most focused on innovation, but also governments, public and private institutions are increasingly considered innovative. In terms of tools, Jong, Marston and Roth (2015) have put together a set of eight attributes that are present, in part or in full, in large companies or organizations considered to be high innovation performers whether in product, process or business model. The first four characteristics (or attributes), which are strategic and creative in nature, help define and prioritize the terms and conditions under which innovation is most likely to be achieved. The other four characteristics relate to how to communicate and organize so that innovation occurs repeatedly over time and with sufficient value to contribute significantly to overall performance (Jong, Marston, & Roth, 2015). For companies and organizations, innovation should be a fundamental condition, and this innovation should consider the three dimensions of sustainability (Barbieri, Vasconcelos, Andreassi, & Vasconcelos, 2010):

1) social dimension - concern with the social impacts of innovations on human communities inside and outside the organization (unemployment; social exclusion; poverty; organizational diversity, etc.);
2) environmental dimension - concern with environmental impacts from the use of natural resources and emissions of pollutants;
3) economic dimension - concern with economic efficiency, without which they would not perpetuate themselves. For organizations, this dimension means making profit and generating competitive advantages in the markets where they operate.

The innovation process that stems from these dimensions is more sophisticated and demanding and requires organizations to make a greater effort to respond technically to this requirement, however, this can lead to the creation of new perspectives for innovation management (Barbieri, Vasconcelos, Andreassi, & Vasconcelos, 2010). This vision assumes greater preponderance in the digital age, where pace of change is considered hyper speed, so institutions (companies, organizations, etc.) must have a good understanding of strategic, creative, executive and organizational factors to successfully innovate and contribute to sustainability (Jong, Marston, & Roth, 2015).

2.3. Sustainability

Sustainability can be considered the pursuit of objectives that go far beyond the old management reputation objectives (Bonini & Görner, 2011). Some examples of the new objectives are energy saving, development of environmentally friendly products, retention and motivation of people (human capital); these objectives help companies to obtain value (capture value) through growth and return on capital. The call for sustainability, translated by what is often referred to as the sustainable development movement "seems to be one of the most important social movements of this beginning of century and millennium. Indeed, no social movement has brought together more heads of state as happened in the events of 1992 in Rio de Janeiro and 2007 in Johannesburg" (Barbieri, Vasconcelos, Andreassi, & Vasconcelos, 2010, p. 147). Later on, other initiatives have brought together a large number of world leaders and led to key agreements, among which are the Kyoto Protocol, the Paris Agreement or the launch and implementation of the of the United Nations (UN) Sustainable Development Goals (SDGs). Sustainable development requires the combination of technical and social changes, since these are deeply related (Schot & Geels, 2008). Under this umbrella sustainable development "innovation should generate positive economic, social and environmental outcomes at the same time" (Barbieri, Vasconcelos, Andreassi, & Vasconcelos, 2010, p. 150). Some organizations, such as the World Economic Forum, support theis work on this concept. WEF goal is to work for a sustainable world; then someone has to innovate to ensure that this happens, thinking about innovation in a broad way and through the vision of sustainability it is possible to discover innovations that contribute a truly transformative impact. To 'make it happen' collaboration is a major factor; an example of the provision of resources and joint participation for a global goal is the Sustainable Development Impact Summit (created by the World Economic Forum). It is above all a platform and a tool (Impact Transformation Map). Those responsible for the initiative understand that the old boundaries of the roles of individual workers are fading and new collaborations between civil society groups, companies, investors, municipalities, universities, technology centres and innovation accelerators are taking off, each seeking to reshape the economics of environmental protection and reinvent business models for sustainable rewards. According to one of those responsible for the Summit, Dominic Waughray, "we are going through a time of Schumpeterian destruction" and high creativity in and for the environmental agenda. According to Waughray, the action revolution is beginning, but we still have a long way to go. However, by unleashing new forms of innovation aimed at achieving global goals and unleashing new and sustainable forms of economic value along the way, we can save the Earth by 2030 (Waughray, 2018). The analized perspective allowed to infer the growing concern to design and implement innovation strategies and sustainable development actions oriented towards the preservation of the common space; a space that, from the environmental point of view, has been systematically destroyed and is now generating warnings of great concern on a global scale. The following chapter briefly describes how Bhutan is a practically unique case.

3. THE CHALLENGE OF INTEGRATING BHUTAN'S INNOVATION AND SUSTAINABILITY STRATEGIES

3.1. The kingdom of Bhutan

Bhutan is still a relatively unknown country. Geographically, it is located in Asia, between Tibet (China) and India. This small Buddhist Country, with a total population of 763,092 (est. 2019), "has resisted with little outside influence" (Leming, 2011, p. 6). The capital of Bhutan is Thimphu. It is situated in the valley of the Raidak River, 25km southwest of Punakha. The city, founded around important Buddhist monasteries, was the summer capital until 1962, and later became the permanent seat of government. Towards the end of the 20th century rapid but orderly urbanization began. Thimphu, connected by difficult roads to the rest of the country and to India, is the commercial centre for the agricultural produce of the surrounding valleys, as well as home to a fascinating textile handicraft, and small food and wood industries. Thimphu, located at 2,200 meters above sea level in central-western Bhutan, has about 100,000 inhabitants. The main symbol of Bhutan is the dzong, a type of white-walled castle crowned with gold and red roofs. Each of the 20 districts has a dzong. Each dzong has two important powers: the monastic body and the public administration. Traditionally a Buddhist monarchy instituted in 1907, Bhutan is ruled by the fifth Druk Gyalpo, the hereditary King of Bhutan Jigme Khesar Namgyel Wangchuck who succeeded his father who abdicated in 2006. In political terms "the country has evolved into a parliamentary democracy with a constitution and elections" (Leming, 2011, p. 235). Bhutan was accepted into the United Nations in 1971. The national currency was instituted in the 1960s, until then they used the Tibetan and Indian currencies. The population is "made up mostly of farmers (practicing subsistence farming) and their families; monks make up another large part of the population, this group includes entire communities who dedicate their lives to praying for peace in the world" (Leming, 2011, p. 6).
In this Country, there are no traffic lights; there is also no styrofoam and few plastic bags, following the decree of King Jigme Singye Wangchuck, an enlightened monarch who said he would rather have for his people a Gross Happiness Index (GHI) than a Gross Domestic Product (GDP) Index (Leming, 2011). The concept of Gross National Happiness (GNH), was introduced by the mentioned King (His Majesty Jigme Singye Wangchuck), the fourth King of Bhutan, in the 1970s. The concept stems from the Buddhist vision of finding a middle ground for the path of sustainable development (Ura, 2012). GNH values the tangible and intangible aspects of well-being equally and is not opposed to material and economic progress, but rejects the idea of the pursuit of economic prosperity as the sole objective. Instead, it proposes an inclusive, holistic, equitable, sustainable and balanced vision of development for societal well-being (Ura K., Alkire, Zangmo, & WangdiI, 2012). The concept represents the notion of good development that promotes societal happiness as an ultimate value.

The explanation of the concept based on Buddhist cosmology brings to light a clear ideological connotation. Among the main ideological precepts, the preservation of nature is something inherent in Buddhist values. General well-being is part of the modern version of the Buddhist doctrine (where harmony in human relationships is fundamental). This new approach is inspired by the principles of conciliation, pragmatism and compassion (Zangmo, Wangdi, & Phuntsho, 2017). Over the years, the Royal Government of Bhutan [The Royal Government of Bhutan (RGoB)] has placed the GNH at the centre of the long-term vision for development, making it a unifying force behind public policy (GNHC, 2013). Moreover, Bhutan's own Constitution clearly underlines the importance of GNH by stating that: "the State shall endeavor to promote the conditions for achieving Gross Domestic Happiness ([NAB], 2008). The Government has adopted a distinctively Bhutanese vision that departs significantly from development orthodoxy, the vision is of a nation that is proud of its history and self-confident in its actions (Royal Government of Bhutan, 1999). Since 2004, the Centre for Bhutan Studies and Gross National Happiness has been organizing conferences and seminars aimed at showcasing and highlighting the conceptual depth and related rigor (Ura K., Alkire, Zangmo, & Wangdi, 2015). These meetings have raised global interest in GNH and have brought together academics, researchers, policy makers and experts from around the world (Zangmo, Wangdi, & Phuntsho, 2017); one example of such experts is Professor Jeffrey Sachs who presents the case of Bhutan as remarkable:"(...) the time has come to rethink the basic origins of happiness in our economic life. The relentless pursuit of higher incomes is causing unprecedented inequality and anxiety, rather than generating more happiness and satisfaction. Economic progress is important and can significantly improve quality of life, but only if it is accompanied by the pursuit of other goals. In this respect, the Kingdom of Bhutan has been outstanding. Forty years ago, the fourth king of Bhutan (...), made a remarkable choice: Bhutan should concern itself with "gross national happiness" rather than GDP. Since then the country has pursued an alternative, holistic vision of development that emphasizes not only economic growth but also culture, mental health, compassion and community" Jeffrey D. Sachs, quoted by Gomes (2013). The theme has been assuming such relevance that since 2012, Jeffrey Sachs, John F. Helliwell and Richard Layard have edited the World Happiness Report. In the 2019 edition, the authors devote two chapters to analyzing the links between governance and happiness. In this same edition Bhutan is ranked 95, in the World Happiness Index ranking (2016-2018) which includes 132 countries; the first place is held by Finland. Domestically, the most recent Index reports to 2015 and shows that 43.4% of Bhutanese consider themselves deeply or extensively happy (GNH Survey Report, 2016). It is interesting to note that the United Nations Development Programme presents itself as Bhutan's Partner for Happiness since 1973.From the social and economic development point of view more things have happened in the last 30 years than in the previous 300 in Bhutan (Royal Government of Bhutan, 1999). Nevertheless, life flows smoothly, made even more fluid by the "propensity of Bhutanese to take it easy and laugh" (Leming, 2011, p. 225). Despite the fact that in a flash it has, television, internet, health system, schools, etc. all in "less than a generation" (Leming, 2011, p. 226) all the rules of social conduct, behavior, religion and sensitivities have remained unchanged for millennia and the Bhutanese do not seem willing to mix their ancestral customs with the life of the rest of the world; so, they are modernizing while struggling to maintain their traditions (Leming, 2011). One word to define Bhutanese society is 'civility' (Leming, 2011, p. 226) which besides this extraordinary feature is a vibrant and colorful society.

3.2. Innovation and sustainability strategies

Secular values of respect for living beings and the environment, the relevance given to the perspective that it is necessary to maintain the correct order of things, have allowed Bhutan to stay away from the "current paradigm of exacerbated consumption and the disruptive effects of globalization (of which the destruction of ecosystems and environmental degradation are examples)" (Gomes, 2013, p. 290). Thus, as Gomes (2013) states, the environmental protection and conservation policies make the country one of the few places in the world where nature preserves its natural state. The Bhutanese example in these issues is already so internationally accredited that the country has taken the lead in speeches on the environmental risks that the planet suffers and in the formulation of policies to combat such problems (Gomes, 2013). The progress recorded since Bhutan cautiously opened itself to change and modernization has inherent the vision that its development assets have been built over centuries and that its approach to development is intrinsically linked to the Buddhist worldview, nevertheless, in recent decades, Bhutan's economy and level of development have seen significant advancement. The country's development has taken place on the basis of the five-year plans, and Bhutan has been able to modernize without compromising (so far) the values of well-being and happiness that it has always placed ahead of any possibility of modernization. The most recent development plans now include the development of the industrial and energy sectors, and no longer only agriculture and infrastructure. Although the primary sector has a subsistence character, it continues to be fundamental today. In 2006, this sector was responsible for 23.7% of the country's GDP (Gomes, 2013). According to the information gathered by Gomes, Bhutan's small population and sparse development contributed to forest preservation. If the most accessible forests were cut down, the more remote ones maintained practically their natural state. The forest conservation policy, sponsored by the progressive government, balanced revenue needs with ecological concerns, particularly with regard to water and soil preservation. The successful management of forest resources was fundamental to the local environment and the economy (Gomes, 2013). To demonstrate how government policies have been implemented, the example of electricity and agriculture was selected. According to information made available by WEF, Bhutan's electricity access rate increased from 61% in 2006 to 100% in 2016, above the country's initial 2020 target. On-grid hydropower is Bhutan's main source of energy and the main culprit for its rapid expansion of electricity access. However, the country's mountainous terrain makes it difficult to extend the grid in remote rural areas, where around 4,000 households are located. As a result, the government has turned off-grid renewable energy projects into a major development effort based on the country's five-year plans, providing about 2,000 rural households with solar home systems and repairing another 1,000. Similar donor-assisted grant projects have filled the remainder of the country's electricity deficit. Although the Bhutanese government has achieved the remarkable target of 100% access to electricity, it lacks the resources and manpower to sustain these projects on its own. The country's mountainous terrain makes remote areas difficult for government officials to access. Communities will need training to install and repair the systems, a strategy that would also lead to more jobs in remote and off-grid areas. There are some community-based pilot projects, but Bhutan's remote rural areas need more. Nevertheless, the WEF also notes that these are excellent examples of how renewable energy potential combined with government support can result in successful electricity solutions. While they still face some financial, regulatory and technical challenges to long-term sustainability, their approaches so far can serve as models for other countries. As far as agriculture is concerned, according to the study conducted by Gomes, Bhutan plans to become the first country in the world to completely transform its agricultural sector by implementing organic and biological farming, banning the use of pesticides and herbicides, and relying on its own animals for fertilizers. Instead of farmers in this small Himalayan kingdom being expected to produce less food, the Government is confident that production will increase substantially (Gomes, 2013). In spite of this almost ideal scenario, from a sustainability perspective, Bhutan may become very precarious due to external influence. A country that is absorbing more CO^2 than the amount it emits (Protano-Goodwin, 2019).

Currently, Bhutan is a carbon neutral Country. Neutrality is a term used to demonstrate that the greenhouse effect, by energy consumption (mainly by transport), industry and agriculture is avoided by zero carbon emissions. In fact, Bhutan is a carbon absorber thanks to its dense forests being able to neutralize the carbon emissions of other countries. However, due to climate change, the glaciers in the north of the country are melting rapidly. Glacial lakes are overflowing and threatening to flood the valleys where the Bhutanese live. So, for all its beauty, there is immense vulnerability (Leming, 2011). Despite this, at a time when the planet is fighting against serious levels of pollution, the destruction of natural habitats and global warming for the very survival of humanity, Gomes (2013) notes that it must be acknowledged that Bhutan was able to identify the danger early on and take a combative stance. For these reasons, Bhutan is increasingly gaining notoriety as an opponent to one of the most striking aspects of the current world order, globalization, and may become, while history is still being written, an important player on a planetary scale of one of the greatest challenges faced by modern humanity: environmental preservation and sustainability (Gomes, 2013). The country also gains notoriety in terms of innovation. The group responsible for managing the aforementioned Sustainable Development Goals programme in the country presents Bhutan's integrated policy tool as an example of an innovative case. In Bhutan, there is a high level of integration of SDG targets in the 11th national plan. 93 SDG targets have been prioritized in 102 steps. According to the SDG monitoring group, the results illustrate the philosophical alignment between the government's vision and the principles expressed in the UN 2030 Agenda. The identified gaps and possible cross-sectoral linkages can be considered useful entry points for discussions on further elaboration of plans to implement the 2030 Agenda.

4. CONTROLLED TOURISM AS A WAY OF PROTECTING PUBLIC SPACE

According to the survey conducted by Gomes (2013), until the beginnings of modernization efforts in 1960 by King Jigme Dorji Wangchuck, most of the people who entered Bhutan, excluding Indians, were British explorers. Among the explorers were Desmond Doig (1961), a friend of the royal family, in 1963, Professor Augustus Gansser, who studied the geology of the country, and in 1964, a group of British physicists, Michael Ward, Frederic Jackson and R. Turner who organized an expedition to the remote Lunana region (Gomes, 2013). With the coronation of the fourth king in 1974, the entry of a large number of foreign visitors was recorded for the first time. After the coronation, small groups of tourists were allowed to enter the country and visit the dzongs of Thimphu and Paro. Since then, Bhutan's tourism industry has evolved considerably (Gomes, 2013). The first group of tourists who paid to see Bhutan arrived in 1974, led by Lars Eric Lindblad, a pioneer of tourism as we know it today. However, Lindblad encouraged the kingdom to limit tourism and charge high fees. The tourism industry has been an "important source of foreign exchange earnings for Bhutan since the Kingdom was opened to tourists in 1974. The potential of tourism in terms of foreign exchange earnings is very high, although strategically the Royal Government is following a policy of restricting the number of tourists. In fact, Bhutan is following an undeclared policy of restricted tourism to protect the natural environment and keep the Himalayan kingdom eternally green" (Gomes, 2013, p. 127). In Bhutan, the number of tourists is still quite controlled by the Government, aware of the impact that such activity can have on the environment. In this way, they also guarantee higher standards in the quality of tourism. On arrival it is necessary to pay a fee for the days of your stay. The amount includes accommodation, meals, guided tours and transport. Most visitors come to the country to get to know its cultural and religious richness and millenary traditions. The most popular tourist itineraries include the capital Thimphu and the city of Paro (near India), the monastery commonly known as "the tiger's nest" (located in a ravine), which represents a very sacred temple for Buddhists, the trails in the Himalayan mountains, and visits to other Buddhist monasteries and national parks (Ritchie 2008).

According to Ritchie (2008), the first tourism policy and related legislation was presented to the National Assembly in 2008. There are plans for the Department of Tourism to evolve into an Authority, with more power and a true regulatory mandate. Discussions on possible tariff revision and, finally, on opening the market are ongoing. Over the 32 years that the tourism levy has been active, by and large it has served the country well, generating good profits for the Government and the tour operators. However, the industry has matured substantially since the implementation of the levy, and the policies developed when the industry was young are perhaps no longer the most effective. It is recognized that the levy restricts the development of small and medium enterprises and limits the incentive to create new tourism products and services. On the other hand, the number of tourists in Bhutan has increased at an unprecedented rate and the number of tour operators in Bhutan has also increased, which may indicate that the time for change is now ripe. This change, however, may not be welcome in all sectors: while some operators say they would accept the freedom that such a change would bring and take the opportunity to compete with other operators on the basis of value, demand and quality, for others, the protection offered by the all-inclusive fixed rate will not be willingly abandoned. The next few years will be exciting for Bhutan. Among the series of changes that a democratically elected parliament and a new constitution will bring, tourism will also undergo further evolution. As with all previous tourism-related decisions, this change will need to be thoughtful, cautious and in line with the Kingdom's overarching goal of Gross Domestic Happiness (Ritchie, 2008).

5. FINAL CONSIDERATIONS

The exploratory study allowed, above all, to understand that it is possible to combine innovation, economic development and sustainable development. The issue of public space was addressed, from the perspective of common space and space as a common good, supported by the example of a country where it was the monarchy itself that took the initiative in making the transition to democracy. It should be noted that along with the challenge of modernization, innovation and sustainability, it is possible that Bhutan's greatest challenge is to manage to control or minimize the effects coming from outside in terms of the threats of global climate change for which the country has not contributed. In this sense, and as a definer of an "alternative paradigm", as Gomes (2013) argued, based on the sustainable and rational distribution of resources, on environmental preservation (given that the world is collapsing) and on the concept of happiness far beyond what profit can offer, Bhutan proves to be decisive. Bhutan is "one of the main critical agents of the world order as we know it today and a major opponent. And it is as an antagonist that it is born as a valid alternative to a model that has so endangered the world" (Gomes, 2013, p. 252). Aditionally, the study allowed us to infer that the fact that the country keeps away from the limelight (or 'publicity' in Habermas's conceptual aspect) may have decisively contributed to not being directly involved in the chaos in which the planet finds itself from an environmental point of view. Protection for the mass tourism sector indicates significant economic profitability on the one hand and minimal impact on all ecosystems on the other. This could be an aspect to be replicated by some tourist destinations worldwide. It is important to note the country's perspective of public space as it is an element that includes nature, its protection and sustainability whereas the social space and the decisive way in which culture and a holistic vision (which can be termed almost mystical in many situations) have contributed to the protection and preservation of culture and the environment. It is concluded, therefore, that the case of Bhutan is inspiring (in a more incisive way for those who have the privilege to visit it) in several ways, in particular on what the purpose of society should be, the protection of nature and how countries can measure success. Bhutan also illustrates that it is possible to implement innovative visions as long as there is political will.

For future studies, it is understood that it is very relevant (for the examples that can be given to the global society) the in-depth study of the policies and the tourism sector, as well as the monitoring of the implementation of the United Nations Sustainable Development Goals. From the author's point of view, it is particularly relevant to deepen the study of the development strategies of the business fabric, in particular the implementation of innovation and sustainability policies defined by the Government as well as the ways of attracting external investors.

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NETNOGRAPHY AS A RESEARCH TOOL IN THE SPORTS INDUSTRY – A LITERATURE REVIEW

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ABSTRACT
In today's world, technology penetrated into our everyday life in many ways. Mobile phones and other communication devices became inseparate from people with social media presence in our lives since we wake up in the morning until we go to sleep. During the day, we constantly connect and check social media. The surprising and relatively new way is the meeting point of sports and social media. Live streaming of sports matches on social media, fan pages, forums and groups are the result of technology meeting the sports and providing the fans with the online experience of matches from the comfort of their homes, participating in live discussion, and following and interacting with the favourite sports persons on social media. As it is well known, the sports industry is also a business that includes sponsorships, brands, sale of media, sale of sports fan accessories, sale of food and adding globalization to the context. Global sport industy has important influence on economies, especially where global sport events take place. In a context of consumer behaviour, sports fans have special relationship and attachmet towards the sports club they are supporting and their loyality is unquestionable, but there is still a lack of researches with sports fans in online communities and deeper analysis of their consumer behaviour and potential. So, in order to provide guidance for future research in the sport Industry using Netnography as a popular scientific method for resarching social networks and internet, this paper aims to review all available existing research literature and synthesising main approaches and findings. More detailed, this review seeks to screen existing research studies published in the period 2012-2022 using Emerald Insight, Taylor and Francis and ProQuest database with the following keywords: "sport" and "Netnography" concerning their a) research focus, b) social media analyzed, c) main findings, d) sport/location and timeframe. For the purpose of this research, all three databases were carefully researched and all papers matching the research criteria and time frame are presented.
Keywords: *Netnography, social media, sports brands, sports industry*

1. INTRODUCTION
Sport can be seen as one of the most important forms of entertainment (Moura et al., 2020) and the sports industry is very important because it affects the economy and contributes to globalization (Memari et al., 2021). The Sports industry generates billions of USD every year based on sale of sport goods, media rights and sponsorship deals.

Sports fans as consumers participate in the sports by watching TV and online streams of matches, attending live events, or purchasing products in the industry (Zanini et al. 2019) but also as a member of sporting social media brand communities. In today's high technological development era, technology has reached each corner of our lives. Accordingly, technology has also influenced the experience and consumption of sports (Ayer & McCarville, 2021). Recently, social media and digital channels have made virtual space communities where people communicate with other people but also made it possible to interact with favourite brands (Fenton et al. 2021). This trend was accelerated due to the COVID-19 pandemic when communication all around the world was shifted to online platforms which, in the context of the sport made it possible for sports clubs to reach new supporters and engage with existing fans in new ways (Mastromartino et al., 2020, Fenton et al. 2021). Sports clubs are present on social media and aware of using their power to grow the global impact and reach and capitalise on worldwide exposure (McCarthy, Rowley and Keegan, 2022). Sports brands use social media as a strategic tool to connect with local and global fans and stakeholders, as well as inform fans and encourage interaction (McCarthy, Rowley & Keegan, 2022). Young people's leisure activities have been profoundly affected by digital technology as they play and consume sports which led to the development of new virtually played sports: known as eSport. It has become so popular that the International Olympic Committee (IOC) are looking to capitalise on its popularity as part of the organisation's work to make the Olympic Games more attractive to youth (Tjønndal & Skauge, 2021). Netnography has been the most extensive research method for investigating virtual spaces (Kozinets, 2002, Moura and de Souza-Leão, 2019). Using a particular model of online observation, the method investigates how Web users create and maintain online cultures (Kozinets, 2010, Moura and de Souza-Leão, 2019). Although Netnography is a well-known established research method, widely applied not only to marketing research (Kulavuz-Onal, 2015), there is still a lack of comprehensive literature review that reviews specific research areas, such as the sports industry in this research, and the application of Netnography as a research method. So the aim of this paper is to guide future research related to the value of Netnography in the sports industry, review existing research and synthesize the main approaches and findings. In particular, this review seeks to screen existing studies published in the period 2012-2022 using Emerald Insight, Taylor and Francis and ProQuest database with the following keywords: "sport" and "Netnography" concerning their a) research focus, b) social media analyzed, c) main findings, d) sport/location and timeframe. The paper is organised into six sections. After the Introduction, which is presented in Section 1, in Section 2, Netnography as a research method is explained with the main definitions and benefits of application highlighted. Section 3 presents the sports industry and all connecting industries that can benefit from Netnography research, while Section 4 presents the conclusions of the literature review according to the defined criteria. Section 5 presents the main future research directions and Conclusion.

2. NETNOGRAPHY

Consumer research and marketing were the first areas in which Netnography was developed, but in order to incorporate diverse perspectives into consumer experience research, anthropology, sociology, and cultural studies were drawn into the original consumer research and as technology and its common use have spread, Netnography has expanded across disciplines (Lizzo & Liechty, 2020). As a form of ethnography, Netnography studies culture and community through computer-mediated communication systems (Kozinets, 2002). Generally speaking, the focus of Netnography as a research method is on social media, and it is used to understand the types of social relations on social networks (Sulinata, F., 2021). Many definitions of Netnography can be found in the literature and some of them are shown in Table 1.

Author	Definition
Kozinets (2002, p. 2)	*"Netnography," or ethnography on the Internet, is a new qualitative research methodology that adapts ethnographic research techniques to the study of cultures and communities emerging through computer-mediated communications. As a marketing research technique, "Netnography" uses the information publicly available in online forums to identify and understand the needs and decision influences of relevant online consumer groups."*
Brown, Kozinets, Sherry Jr. (2003, p. 22)	*"Netnography involves the transplantation of ethnography, one of the most venerable marketing research procedures, to cyberspace, the latest marketing milieu. As in the case of its offline counterpart, Netnography necessitates in-depth immersion in and prolonged engagement with the many consumer cultures that populate the World Wide Web (Kozinets 1999, 2002b)."*
Kozinets (2010, p. 4)	*"Because many of us live our lives in an interrelated matrix of online and offline social behaviours, meaningful studies of culture must attend to both types of communication. Netnography adapts ethnography to this complex combination of online and offline sociality by giving us ways to study life in the time of technologically- mediated culture."*
Felix, R. (2012, p. 226)	*"A tool of analysing online communities is thus able to integrate the broadened spectrum of agents involved in the construction of individual and collective identity. Similar to traditional ethnography, Netnography is open-ended, interpretative, flexible, metaphorical, and grounded in the knowledge of the specific and particularistic (Kozinets, 2002). However, Netnography is usually faster, simpler, and less expensive than traditional ethnography (Kozinets, 2002, 2006)."*
Udenze (2019, p. 58)	*"Netnography is a qualitative research methodology that is built on the narratives that individuals publish on cyberspace. (Kozinets, 2010) Netnography is simply the combination of Internet and ethnography. This research method, as earlier stated, is premised on the factor of online computer-mediated communication. Primarily, ethnography is the anthropological study of life and culture in a face-to-face (real-life) setting, but with the emergence of the Internet, cultures are manifesting online."*
Kumar, B. & Dholakia, N. (2020, p. 292).	*"Netnography adapts ethnographic research techniques to study the cultures and communities that are emerging through computer-mediated communications (Kozinets, 2002, p. 62)."*

Table 1: Sample of definitions of Netnography
(Source: Authors)

Netnography became important for research in the sports industry as recent technological advances are having a major impact on how the sport is enjoyed by fans. Online forums provide fans with the opportunity to watch, debate, and celebrate their favourite sports, competitions, and athletes. Sports enthusiasts can use social media to communicate with others about their interests, ask questions, offer opinions, and share comments (Ayer & McCarvill, 2021). Due to its applicability and reach, as explained, for the future of our research, Netnography will be the method used.

3. THE SPORTS INDUSTRY IN MODERN RESEARCH

Sport can affect the economy in terms of increased consumption and production or as an element of the tourist offer (Hodac and Botunec, 2006). According to Moura et al. (2020), sports are one of the most important entertainments which are divided into practice sport and media sport through worldwide broadcasts. Memeri et al. (2021) emphasize that there are more than 500 million people participating in sports and generate a gross output from the sports industry of up to 815 billion USD. In the context of the sports industry, the importance of sports as a business can be seen through the sale of sports goods and memorabilia, the sale of media rights and sponsorship deals (Memeri et al. 2021). For example, soccer as the leading sector in the sports industry brought global market revenue of nearly $102 billion in 2017 which includes the revenues from ticket sales, media rights and sponsorships (Nielsen, 2017). According to Memari et al. (2020, 2021), sports is one of the most popular industries which has contributed to globalization mostly through television broadcasting on sporting events. The globalization of sports events can be recognized through the sports events such as football World Cups. Zhang et al. (2018) emphasized that football as a sport has strong economic, social, cultural and even political effects so many countries see further benefits from that sport's development. Sports marketing as a business function refers mainly to the concept of demand for sports products and services and the concept of consumer satisfaction. Sports fans as consumers participate in the sports industry through the consumption of products, attendance at live sports events, or viewing matches on TV and online streaming (Zanini et al. 2019). Also, in recent years sports fans actively follow the social networks profiles of athletes and sports clubs and interact with them by commenting on a topic, replying to comments, sharing the news etc. (Zanini et al. 2019). It is important to highlight that sports fans as consumers have unique relationships with their favourite teams in a way to contribute to brand value co-creation (Vale and Fernandes, 2018). So, social media could have a very important role in sports marketing and making stronger emotional engagements between sports clubs and their fans. Some studies have shown that the average sports fan spends between 1-2.5 hours visiting the social networks of their favourite club weekly and the quality of social media content could influence the image and business of sports clubs (Kuzma et al. 2014). According to Lupinek (2019) sports fans are often viewed from a brand community perspective, and brand communities have become a core of business in the last decade. Generally, a brand community can be defined as a "specialized, non-geographically bound community, based on a structured set of social relations among admirers of a brand" (Muniz and O'Guinn, 2001, p. 412). For the sports industry and its success, it is important to have a strong community of sports brand admirers. Nowadays, online sport fan communities can have a very significant role in sports brand promotion and also strengthen fan-to-team and fan-to-fan relationships (Kim & Manoli, 2022). Sports organisations/brands can promote their activities further and quicker by using online-based communication techniques to communicate news in real-time, which also influences the perception and attitude of sports fans (Morrison et al., 2018).

4. BODIES OF LITERATURE ASSOCIATED WITH NETNOGRAPHY AND RESEARHES CONDUCTED IN THE SPORTS INDUSTRY

In this review, we focused on defining the main terminology in Netnography research and screening and describing the analytical details of the existing research conducted in the sports industry using Netnography as a research method. This approach is used to locate the possible direction of our future research. Table 2, shows the matrix of the two combined dimensions that summarize previous research.

Author	Research focus	Media analyzed	Main findings	Sport/Location Time frame
Felix (2012)	Consumers' product use, practices, identity, and brand meanings in the context of a brand community dedication to a mainstream Japanese motorcycle brand.	Yamaha R1 forum	Consumers for mainstream brands may be more prone to multi-brand loyalty.	Motorcycling August 2006 - June 2010
O'Reilly, N. et al. (2012)	The potential role and use of online social media to influence sport participation in youth aged 12 to 17 years (consumer-behaviour approach)	online forum (selected forum had the large number of members and highly active nature, as well as for its focus on teens. It had over 160,000 active members from many different countries, including Canada, the USA, the UK and Australia)	"Online discourse related to sport participation among youth is limited. When discussion does take place, five themes emerge: benefits, advice-seeking, finding common interests, learning new sports, and challenges."	Sport in general n/a
Rosenthal and Cardoso (2015, p. 367-368)	"The role of social tensions and national passions in relation to a global industry (soccer) and a mega event (the FIFA World Cup)"	Facebook, Instagram (additional: reviewed documentaries and short films and press articles)	"Soccer in Brazil is viewed both as a sport representing democracy and the hope of social mobility and as an industry echoing dissatisfaction with the status quo."	Football, 2014 FIFA World Cup in Brazil 2014
Popp (2016, p. 349)	Investigate social media-based anti-brand communities and their effects on the sports team brand (F.C. Bayern)	Facebook-based anti-brand communities (two) that oppose a professional football team (additional: continuous participant-observation fieldwork)	"Research identifies co-destructive behaviours of anti-brand community members that harm the sports team brand and even its sponsors."	Football, Germany Bundesliga team six months, 2012
Zanini et al. (2019, p. 791)	Consumer engagement practices influence on the shape of the dynamics of a soccer club virtual brand community.	Tweeter (more than 7,000 tweets about São Paulo FC soccer club on Twitter - Twitter profile of São Paulo FC (i.e. @SaoPauloFC))	"The dynamics of engagement relies on two types of practices: those that comprise the actions of tweeting, retweeting, replying to, mentioning and liking messages from and about the São Paulo FC soccer club profile and those derived from the proposition of Hollebeek et al. (2017)."	Football, Brazil 2016
Moura and de Souza-Leão (2019, p. 36)	Respond how Brazilian viewers enjoy the NFL through Social TV.	Twitter (hashtags regarding NFL broadcasts in Brazil)	"Brazilian viewers enjoy the NFL through Social TV because it propitiates them to participate in the broadcasting, what becomes more important than the games itself."	Football, Brazil 2016-2019
Souza-Leão & Moura (2020, p. 214)	Consumer cultural practices taking place in online environments.	Tweeter (hashtags: #TudoPelaNFL, #PlayOffsNFLnaESPN, #SuperBowlnaESPN and #NFLnaESPN)	"Consumption of a sports modality by a virtually mediated audience mimics the emotions and the sense of collectivity expressed during face-to-face experiences, although they require spectacles."	Football/ Brazil three NFL seasons, from 2016 to 2019
Gillooly et al. (2020, p. 1502)	Fans' reactions to corporate naming rights sponsorship of football club stadia and identify a range of	online message board discussions	"Different dimensions of sponsorship fit can act as contextual factors in determining fans' reactions	Three football clubs in North West England n/a

	contextual factors impacting these reactions.	(additional: focus groups and auto-ethnographic approaches)	to corporate stadium names."	
Moura et al. (2020, p. 251)	Interaction in social media of the Brazilian NFL audience, during the transmissions of its games and how it results in consumption attachments	Twitter (hashtags created by the ESPN Brazil channels)	"Brazilian audience interaction in social media establishes consumer attachment with the NFL by means of the brand elements and aspects of social life, mediated by the league."	Football, Brazil seasons: 2016-2017 and 2017-2018
Lizzo & Liechty (2020, p. 15)	Online group interaction	Facebook-based virtual community Hogwarts Running Club	"A virtual setting as a setting for the development of Sense of Community. This suggests that Sense of Community, as can be developed in face-to-face leisure-based communities, can also be developed in leisure-based virtual communities in a similar fashion"	Running six montths
Ayer & McCarville (2021, p. 525)	Interpersonal dynamics within international online tennis forum	Forum Tennis Talk (19,782 messages posted to 54 discussion threads online interactions)	"Results revealed how posters are interpreted, critiqued, and debated events and forum practices."	Tennis 14 December 2015, and 31 July 2018
Fenton, Keegan & Parry (2021, p. 17)	The potential for social media brand communities to develop a sense of community and place amongst sports fans.	Official SCFC Twitter SCFC fans forum Twitter Official SCFC Facebook SCFC Fans Facebook Fans forum (additional: interviews)	"Communications between the club and supporters and intra-group communication between fans in these digital spaces developed both a sense of community and place."	Football 2015-2018
Yoo, E. (2021, p. 1751)	Impression management of South Korean sports stars through image-based social media.	Instagram (additional: interviews)	"Platforms like Instagram can serve as a forum for creating a positive impression by projecting an outgoing yet humble appearance. Social media can be a helpful tool for celebrities as important sports industry assets, allowing them to strategically coordinate their public persona."	10 South Korean sports stars with more than 10,000 followers on Instagram. February 2015 - June 2018
Stronach, O'Shea, & Maxwell (2022, p. 12)	Influence of sporting role models and their role for women and girl.	Facebook/YouTube/ Twitter/Instagram/ podcasts (additional: print media as well as mainstream media: Age, Australian Guardian, Herald, The Advertiser, Daily Telegraph, Australian Broadcasting Commission sport	"A deeper understanding of the platform provided by sport for sporting role models to use their voices and profiles to support Indigenous societies."	Olympic athletics champion, cricket player and netballer 2017-2021

Table 2: Netnography in sports industry matrix
(Source: Authors)

As it can be seen from the matrix, 28.5% of the analyzed papers presented used Twitter, followed by 23.8% that used Facebook and Forums. Only 14% used Instagram, while YouTube and Podcasts were used by 4.7% of total researchers.

Football was the focus of the research in 57% of the research presented, followed by 14% of researches on Sports stars and only 7% in motorcycling and 7% in tennis. An overview of the studies regarding Netnography in the Sports industry is presented in Table 3.

Research focus / Authors	Brand community	Role and use of online social media	Role of social tensions	Consumer engagement practices	Consumer cultural practices	Sport fans (group) reactions/interactions	Sports star image
Felix (2012)	X						
O'Reilly, N. et al. (2012)		X					
Rosenthal and Cardoso (2015)			X				
Popp (2016)	X						
Zanini et al. (2019)		X		X			
Moura and de Souza-Leão (2019)		X					
Souza-Leão & Moura (2020)				X	X		
Gillooly et al. (2020)						X	
Moura et al. (2020)				X		X	
Lizzo & Liechty (2020)						X	
Ayer & McCarville (2021)		X				X	
Fenton, Keegan & Parry (2021)	X	X				X	
Yoo, E. (2021)							X
Stronach, O'Shea, & Maxwell (2022)							X

Table 2: Netnography in sports industry researches
(Source: Authors)

Researchers that used Netnography in the sports industry are more interested in Sports fans (group) reactions and interactions (25%) and the Role and use of online social media (25%) regarding sport participation. Sports brand communities were in the interest of 15% of researchers as well as sports consumer engagement practices. The image of the sports stars was a topic that covered 10% of the papers.

5. CONCLUSION

Netnography as a research method has been used for many years and had applications in many industries. The intention of this review paper was to give an overview of the context and focus of previous Netnography researches in the sports industry context and to provide a reference guide for further research. Further research will aim to discover the role and use of social media in the sports industry of Croatia and Serbia as well as test the social media influence on coordinating sports public personas. The research question that will be discussed will answer the question *"Do sports fans' interactions on social media (Facebook, Instagram and Twitter) in Croatia and Serbia create a sense of community and place? And is social media creating positive impressions of sports public personas in Croatia and Serbia?"*

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CHALLENGES FACED BY MUNICIPALITIES IN BULGARIA IN THE IMPLEMENTATION OF ELECTRONIC ADMINISTRATIVE SERVICES

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ABSTRACT

Bulgaria have been preparing for the E-Government since 2002, and many documents of a strategic and normative nature have been developed, but only in the last two years (2021-2022) did the offering of real electronic services begin. The focus is on the municipalities that are charged with ensuring the electronic transition in the provision of administrative services, but it turns out that there are still many municipalities that have digitized only a part of their portfolio and encounter a number of problems and difficulties for operating in an electronic environment. In a global context, the digitalization processes in Bulgaria are seriously lagging behind and, in addition to the problem with the supply of electronic services, there are also a number of restrictions on their use. This necessitates a more in-depth analysis of digitalization in municipal administrations and analyzing the current state of the process, as well as outlining its prospects. Through content analysis, critical analysis of documents, induction and deduction, the article analyzes the challenges facing the municipalities in Bulgaria in the implementation of electronic administrative services. A critical overview of digitalization in Bulgaria is presented, identifying both good and bad practices in the field of electronic administrative services. On the basis of the good practices in some municipal administrations, possibilities for their implementation at the local level have been proposed, and through the analysis of the bad practices, solutions to the potential problems of the transition have been sought. As a result of the research, the challenges facing the Bulgarian municipalities in the digitalization of administrative services have been outlined.

Keywords: *Digitalization, Electronic administrative services in municipalities, E-Government*

1. INTRODUCTION

The processes of increasing the pace of digitalization in all spheres of socio-economic life in Bulgaria are inextricably linked with global trends in this regard. In the conditions of Covid-19, the transition to a remote way of organizing activities only strengthened and accelerated the need for a more intensive development of electronic interaction between people, business and institutions (Bogdanova, et al., 2022). Some authors take this as part of the digital economy concept in the part of creating final digital goods and services (Bukht & Heeks, 2017) (Sutherland & Jarrahi, 2018), while others broaden the view by adding digital skills and intermediate digital goods and services (Knickrehm , et al., 2016). A number of researchers in this field define the development of digital tools such as mobile applications, social media, applications for cloud services, the Internet of Things, blockchain, 3D printing, etc., as scientific breakthroughs that fundamentally change the way we work, live and treat each other, assigning them to the so-called Fourth Industrial Revolution (Industry 4.0) (Schwab, 2016) (Nedyalkov, et al., 2020). In this context, in any case, digitalization is internationally accepted as a strategic goal for organizations and efforts in this direction already start at the political and managerial level. It is impossible for the public sector to remain isolated from these processes and it is important to quickly adapt to the ever-increasing expectations and demands of society and business. In this regard, the Republic of Bulgaria, being a member of the European Union since 01.01.2007, participates institutionally in the preparation, discussion, adoption and implementation of European policies and strategies on a wide range of socio-economic issues, including and in terms of digitalization. Following the rules for the coherence of European law, the country integrates into its legal framework the directives, regulations and decisions adopted by the European Parliament, the Council of the EU, the European Commission, as well as updating its internal regulatory legal framework. The review of the documents related to the issue of digitalization shows that Bulgaria has developed and adopted numerous laws, plans, strategies, methodologies, etc., which directly correspond to the documents at the EU level, among which, without pretensions to exhaustiveness of the list, important for the processes related to the development, administration, regulation and financing of digitalization, have: Europe 2020 Strategy for smart, sustainable and inclusive growth; Digital Agenda for Europe; Digital Single Market Strategy for Europe; The Horizon Europe Framework Program for Research and Innovation; Digital Compass to 2030: The European Path to the Digital Decade; Recovery and Resilience Mechanism, etc. The regulatory framework in Bulgaria in the field of ICT in force as of 2022 covers a number of laws, the most important of which are: Law on electronic identification; Electronic Commerce Act; Electronic Communications Act; Law on Electronic Communications Networks and Physical Infrastructure; Law on electronic document and electronic authentication services; e-Governance Act; Personal Data Protection Act; Cyber Security Act; Law on the Commercial Register and the Register of Non-Profit Legal Entities, etc. There are also numerous by-laws detailing the regulation in the field of ICT. From an institutional point of view, at the national level, the coordinator of activities related to the introduction of digital technologies into the economy and society is the Ministry of Transport, Information Technologies and Communications. Among the main documents related to digitalization in Bulgaria are the National Program "Digital Bulgaria 2025", National Plan for Recovery and Sustainability of the Republic of Bulgaria, National Development Program Bulgaria 2030, Digital Transformation of Bulgaria for the period 2020-2030, Program "Research, Innovation and Digitization for Smart Transformation". National program "Digital Bulgaria 2025" is a continuation of the program "Digital Bulgaria 2015" and aims to modernize and universally introduce intelligent IT solutions in all spheres of the economy and social life, by creating an environment for the wide application of information and communication technologies (ICT). , national infrastructure, innovative electronic services of a new type for businesses and citizens, uniform standards and achieving a high degree of network and information security and interoperability. It sets out the goals, measures and activities, commitment of the various administrations to achieve the main strategic priorities (Ministry of Transport, Information Technologies and Communications, 2019).

The guiding motive of the document is that ICT is the main driver of the digital revolution in Europe, a fundamental factor for building a competitive economy based on knowledge, for an innovative and inclusive information society, ensuring a high quality of life for citizens. Considering the importance of ICT and its potential for increasing productivity, innovation and employment, reducing inequalities, inter-regional and intra-regional differences, ensuring easier access to education, the National Plan for Recovery and Sustainability of the Republic of Bulgaria invests significant financial resources in this area - 23.6 % of the total investments planned for the country. At the same time, efforts are directed in four main directions: deployment of broadband infrastructure; increasing the digital skills of the population; accelerating the implementation of digital technologies in enterprises; deployment of e-government and e-services (Council of Ministers, 2022). The National Development Program Bulgaria 2030 is a framework strategic document of the highest order in the hierarchy of national program documents. It defines the vision and general goals of development policies in all sectors of state administration, including their territorial dimensions. Three strategic goals and thirteen national priorities are formulated in the program. Directly corresponding to digitalization is priority 8 Digital connectivity in two areas of impact and three sub-priorities: sub-priority Digital networks with areas of impact High-speed connectivity; and Fifth Generation (5G) Mobile Networks; sub-priority Digital infrastructure with areas of impact Data centers; and Cloud infrastructure; sub-priority Digital inclusion with areas of impact Connectivity for centers of social life; and Free Internet access (Council of Ministers, 2020). Another important document related to the studied issues is the National Strategic Document "Digital Transformation of Bulgaria for the period 2020-2030", in which the leading understanding is that the accelerated digital transformation is a prerequisite for anticipatory development of economic production, for growth and increase in income. The development of this process requires adequate and timely measures to increase the knowledge and skills of citizens, to acquire new skills and qualifications and to create a culture of lifelong learning that responds to the increasingly dynamic nature of the labor market (Ministry of Transport, Information Technologies and Communications, 2020). The program "Research, innovation and digitalization for intelligent transformation" (Ministry of Innovation and Growth, 2022) meets the strategic needs and priorities of Bulgaria for the implementation of a common policy for the development of scientific research and innovation and for the digitalization of the public sector with a view to creating conditions for data-based management in the benefit of the country's accelerated economic development. Regarding the level of digitalization and the progress of the EU member states, the European Commission monitors the Index for the penetration of digital technologies in the economy and society (DESI) (European Commission, 2022), according to which Bulgaria occupies 26th place. Bulgaria's DESI score has grown by an average of 9% per year over the past five years, but this growth rate is not enough for it to catch up with other member states. Bulgaria registered unsatisfactory achievements in all four investigated areas (digital connectivity, use of digital skills online, digitalization of enterprises and digital public services), lagging behind the European average values. On the basis of the above, it can be summarized that regardless of the harmonization of the national normative and strategic framework regarding digitalization with the current documents at the EU level, the results show that the country is significantly behind the average indicators of the community.

2. METHODS

In the present study, the following research methods were applied. Content analysis, critical document analysis, induction, deduction and traduction were used in researching the normative and institutional framework for digitalization. To identify the challenges and barriers facing the municipalities in Bulgaria in the implementation of electronic administrative services, a multi-factor spatial analysis was applied.

When systematizing the level of introduction of digitalization in the administrative practice of municipalities in Bulgaria, a two-phase survey was carried out in the period May-September 2022 of all 265 municipalities in the country through an online questionnaire. In the first phase (May-July), a desktop survey of the electronic administrative services offered by each municipality in UP and their registration on the official websites of the municipalities was made. In the second phase (August-September), an online survey was conducted using the respondent method. The conclusions and generalizations in the present work are based on the completed questionnaires from 109 municipal administrations (41%). A probable reason for the lower activity of the respondents can be found in the upcoming municipal elections in October and the workload of the administrations.

3. GOOD AND BAD PRACTICES IN ELECTRONIC ADMINISTRATIVE SERVICE IN BULGARIA

Before examining in detail the good and bad practices in electronic administrative services in Bulgaria, it is important to specify the parameters of the concepts that will be the starting point for formulating the relevant conclusions from the conducted research. In this publication, the term "electronic administrative service" refers to the interaction in a digital way between administrations, citizens and businesses, in which documents are exchanged certifying facts, the presence or absence of rights and obligations or providing another type of service to the legitimate interests and needs of society. Electronic administrative services can be broadly defined as internal, where the exchange of information between different administrations is ensured, and external, which are aimed at the population. As part of the concept of e-government in Bulgaria, the concept of complex electronic administrative service is also found, which expresses the possibility to initiate more than one service with one interaction. The processes in Bulgaria regarding the transformation of the public administration towards more coordinated and digitized processes, however, face a number of challenges. Some of them are related to the introduction of legal obligations, but without clear procedures and provision of the necessary resources. An example of this is the still insufficiently effective implementation of internal administrative services, i.e., there is a non-use of the network capacity and hence an interruption of the flow of information between the institutions. This also puts at risk the fulfillment of one of the main goals of e-government, namely the development of complex administrative services (Delcheva, 2019). On the other hand, as part of the good examples at the national level, the development and implementation of the Administrative Register, the software environment for inter-register exchange RegiX, the launch of the Complex Administrative Service model, although the latter lacks technical capacity and has limitations when exchanging data. As an example of good practice in Bulgaria at the state level, the development and subsequent updating in 2021 of the Strategy for the Development of Electronic Government and the accompanying Concept for Registry Reform can be considered. As of 2017, after an inventory of the electronic registers in the country, it was found that they number 17,797, some of which are without a legal basis, and others are of the same type in their subject area, but are maintained by different institutions, which unnecessarily increases costs (Ministry of Council, 2021). A significant finding arising from the study carried out in the Concept, which is directly related to the outline of the overall picture of the degree of digitalization in the state sector in Bulgaria, is that a large part of the observed registers (80%) are electronic, but not digital, i.e. they are in xls, doc, pdf format and do not allow electronic exchange. In the context of the national picture of the state of the state system for the provision of electronic administrative services, it is extremely important to identify, even at the municipality level, both the mechanisms that give good results and its key weak points. In this regard, within the framework of the present study, a desktop study of the provision of electronic services by all 265 municipalities in Bulgaria was carried out and a database was generated, giving grounds for the formation of good and bad practices in this regard. The scope of the conclusions drawn has also been expanded with information from secondary sources relating to the electronic administrative service at the municipality level. Qualitative data analysis allows the following groups of conclusions to be drawn:

1) The websites of some municipalities indicate the types of services offered by the administration electronically, but there is no possibility to apply for a given service remotely. With this, the process of providing electronic administrative services is shaped as rather fictitious without the possibility of real progress.
2) The offering of e-services is mainly expressed in the ability to download an electronic form of a document, which, however, cannot be submitted or received remotely. Again, there is a disruption in the processes, with which no real electronic service can be carried out.
3) A serious lack of important information was found in over 60% of the websites of the municipalities in Bulgaria. Most often, the gaps refer to an incomplete or complete absence of a named list of electronic services offered by the administration, non-working links or a lack of essential references and explanations, through which users can effectively take advantage of the opportunities for remote access to administrative services.
4) Although all municipal administrations in the country have registration in the Administrative Register, E-Gov - The unified portal for access to electronic administrative services and SSED - The system for secure electronic delivery, a small number of them provide information or links about this on their websites. This finding as a result of the research clearly shows the lack of coordination and integration between the various electronic registers and systems in the field of application, payment and provision of electronic public administrative services.
5) As a positive trend, the presence of embedded electronic services on the websites of municipalities is identified, but the percentage is still too low (37%). About 29% of the surveyed administrations provide a link to e-Delivery, (https://edelivery.egov.bg), and only 17% to a Single Point of Entry for electronic payments to e-government service providers (https://pay.egov.bg/).

Part of the municipalities are looking to diversify the forms for providing electronic administrative services. An example of this is the Teteven administration, which successfully implemented a public information terminal kiosk and created places for electronic public access and use of electronic administrative services. It can be summarized that the information provided by the municipalities in Bulgaria, through their official websites, is too chaotically structured, with many missing elements and important links necessary for the complete implementation of electronic services. The potential for direct contact of institutions with citizens and businesses, which social networks provide, remains unused, and where there are actions in this direction, there are no clearly written rules of conduct. It can be assumed that some of the administrations, mainly the smaller ones, do not distinguish between the actual provision of electronic services in a completely digital way and the provision of the possibility to download forms for requesting services, which in no case can be called electronic service. The reasons for the slow pace of development of the digitalization of the public sector can be sought in different directions - from a lack of capacity and resources in state bodies and difficult communication to a reluctance to change the status quo. It is important to note that the process of digitalization of the public sector as a whole in an international aspect is developing at an extremely accelerated pace, and Bulgaria is significantly behind in this regard. The level at which the country is currently is far from Government 5.0, the concept of which incorporates the ideas of personalization of services by focusing on citizens and their needs.

4. RESULTS OF A SURVEY OF ELECTRONIC ADMINISTRATIVE SERVICES IN MUNICIPALITIES IN BULGARIA

The conducted survey is focused on the opinion of experts with a management function (54.13% of the respondents) and with a control function (12.84%), as well as among respondents with a technical function (7%). The least covered in the survey process are municipal administrators with operational (8.26%) and clerical (5.5%) functions, as the survey was distributed through the provided contacts of municipalities for AES in UP. In the process of analyzing the obtained results, two groups of barriers are formed that municipalities encounter in the implementation and provision of AES: external - user attitudes, regulatory restrictions, policy coordination; internal – specifics of e-services and administrative capacity. The external barriers identified by the respondents are presented according to the degree of importance for the municipalities in the study, and in the first place, the attitudes of users towards using AES are highlighted. According to 83.49% of respondents, citizens and businesses are reluctant to apply for AES, and 35.78% of them believe that the reason for this is the lack of digital skills of society, which confirms a number of international studies in this direction and confirms the permanent lagging behind on this indicator.

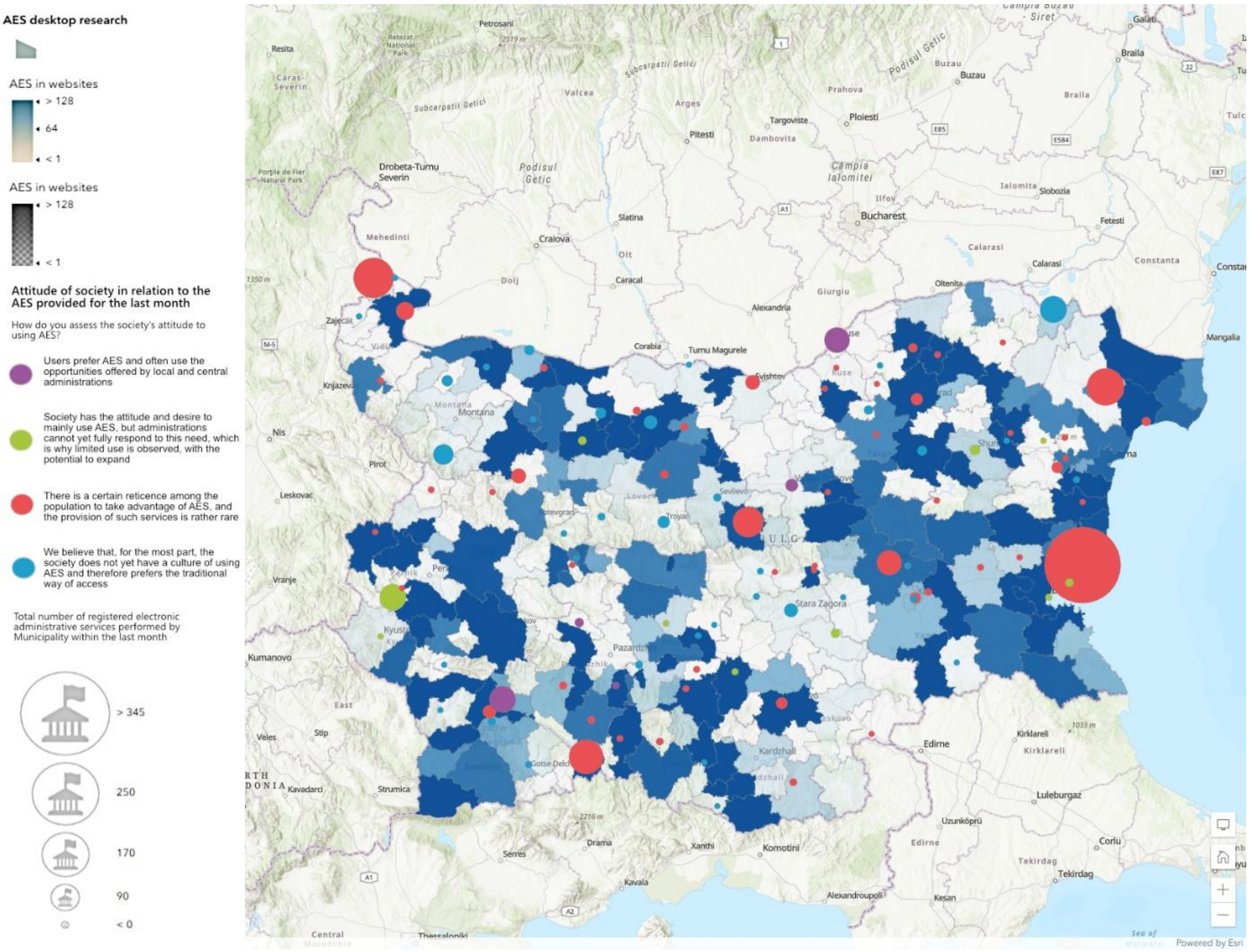

Figure 1: Spatial analysis of the relationship between public attitudes toward using AES and AES provided in the previous month
(Source: Own calculations in ArcGIS online)

In fig. 1 presents a spatial analysis of the relationship between public attitudes toward using AES and AES provided in the previous month[1]. Fig. 1 presents a spatial analysis of the relationship between the public's attitudes towards the use of AES and the AES provided in the previous month by municipalities in the study, as the basis for the analysis is the data from the phase 1 desktop research, which outlines the declared AES on the websites of the municipalities [2]. It is noteworthy that the municipalities that provided the largest number of AES for the previous month report a reluctance of users to request such services, while at the same time it is evident that the municipalities that provided the largest number of AES are precisely those that are have announced their full AES portfolio on their sites. Next, in the questionnaire reading, the regulatory restrictions are outlined, which, according to a large part of the respondents (74.31%), are related, on the one hand, to the difficult-to-understand regulatory framework, which often remains inapplicable in a real working environment. On the other hand, the requirement in relation to electronic identification for an electronic signature further complicates and limits the provision of AES (when entering the system, the user has already identified himself by registering with the NRA/NOI and the identification is duplicated). Moreover, according to the respondents, the process of providing AES is complicated due to the lack of specific instructions for its application. Organizing trainings based on applied models and real cases is an important step for improving the digital transformation process in municipalities. Logically, the barriers related to the coordination of the policy and the application of AES are outlined next. More than half of the respondents (53.21%) believe that the lack of unification of procedures, including regarding the appearance of the municipality's website, is a prerequisite for delayed digitalization. The fact that there is no continuity between the individual administrative systems is worrying, as municipalities often use different AIS in the administrations. A significant issue is also the non-acceptance of electronically signed documents, as well as the requirement of a paper medium with wet printing in a large number of institutions, making the availability of AES practically unnecessary. And last but not least, the promotion of AES at the national level is campaign organized (e.g. for the electoral process) and there is no clear and permanent policy for disseminating information to the public about the benefits of AES at the municipal level. Against the background of the external restrictions on the provision of AES, the internal barriers to municipal administrations to ensure the digital transformation process also stand out logically. The first challenge faced by administrations (81.65% of respondents) are barriers related to the nature of services. This is due to the fact that most institutions do not accept electronically signed documents, and municipalities still lack digital databases due to a lack of opportunity and means to digitize all registers, which means that most documents are stored on paper. In addition, the requested AES often have incomplete or incorrectly completed documentation by users, which necessitates subsequent calls to clarify the service, and online payments are often a buffer that municipalities take on in the form of an additional financial expense. Barriers related to personnel are identified by 60.55% of respondents in the study, the most serious problem being the need to increase the qualifications of personnel, with 54.12% of respondents reporting that they lack qualified staff to provide AES. On the one hand, this indicates a perceived need, but on the other hand, it is a barrier that can be easily overcome by providing additional applied training and increasing staff motivation. Therefore, the spatial analysis of administrative capacity is presented in Figure 2, where the relationship between administrative capacity in municipalities and the AES provided in the previous month is analyzed based on the AES declared on the websites of the municipalities.

[1] Since the municipalities join UP at different times, in order to have comparability of the data, the criterion "provided AES in the previous month" was chosen, not "total number of provided AES".

[2] The choice of the criterion "declared AES on the websites of the municipalities" was made, because it indicates a degree of transparency of the digitalization processes in the Republic of Bulgaria, and as a result of the analysis, a serious discrepancy was found between the AES declared on the site and the AES actually provided by the municipalities within UP.

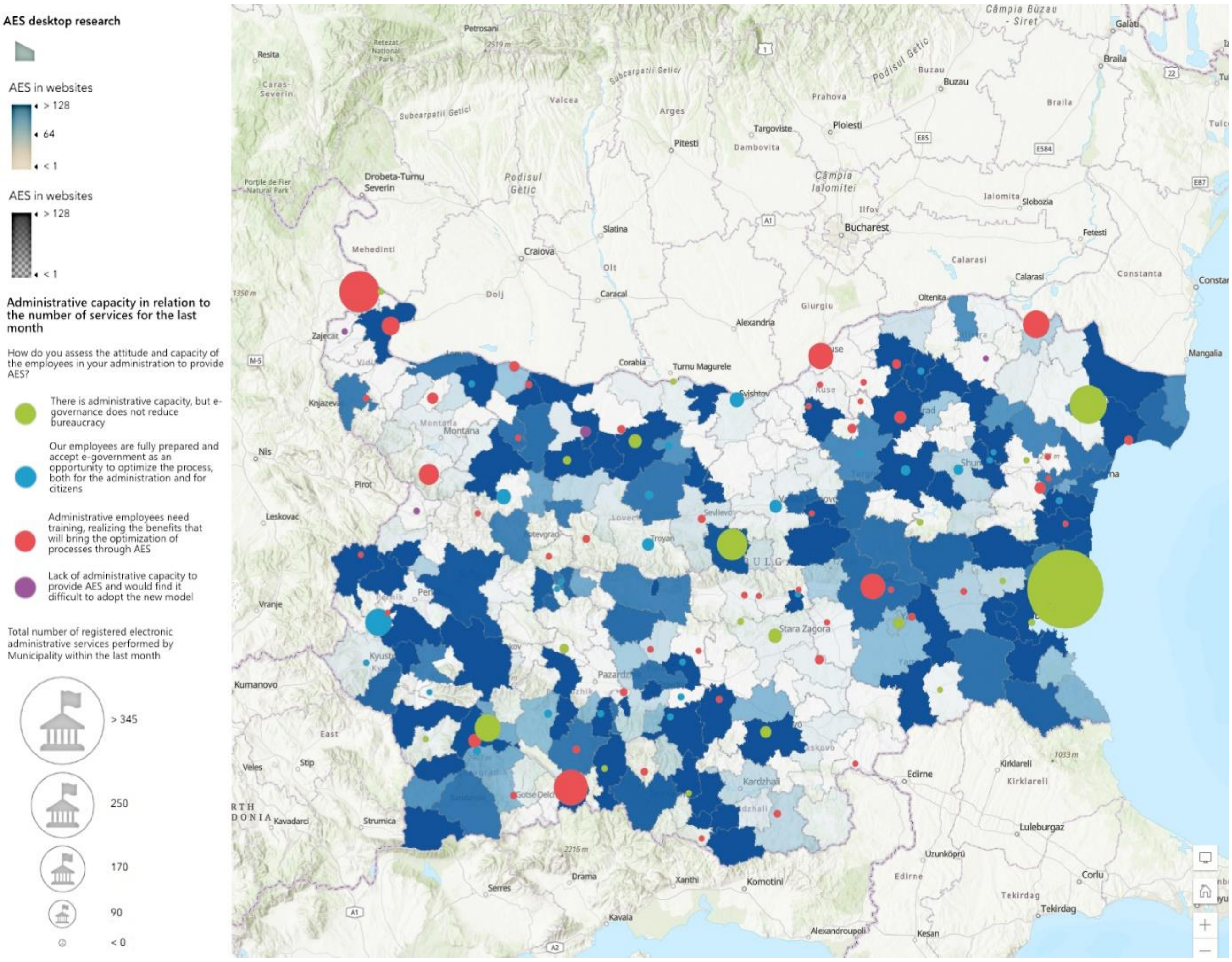

Figure 2: Spatial analysis of the relationship between administrative capacity in municipalities and AES provided in the previous month
(Source: Own calculations in ArcGIS online)

It is clear from the figure that although there is a preponderance of municipalities that identify the need for additional training to increase administrative capacity, those that provide the largest number of AES within the previous month report that there is sufficient administrative capacity, but do not consider , that bureaucracy is reduced as a result of the digitalization of processes. However, the municipalities reporting the highest administrative capacity are those that realized the least number of AES within the month and limitedly declared their portfolio of AES on the municipality's website, which may be an indicator of capacity overexposure. It is important to note that, regardless of the problems identified in the research process, in a number of municipal administrations, indisputable advantages in the implementation of AES are also emerging. Municipal administrations note an increase in the dynamics of processes in the municipality after the implementation of remote services, with 70% of respondents reporting the dynamics as a positive change. In contrast, the majority of municipalities (67%), have more than 50% of their services digitalized, while 62% of respondents notice no duplication of work or an increase in bureaucracy. More than half of the respondents (53%) identify that the remote provision of services does not hinder the *connection of the municipality with the users*, even an improvement of the processes in the administration is reported based on feedback from citizens and businesses.

5. CONCLUSION

The digital transformation of administrative processes in municipalities is a slow and complex process that requires special attention, since it is municipalities that are in the closest contact with citizens and are the conductor of global policies. As a result of the study of the challenges facing municipal administrations in the processes of digital transformation, several main conclusions can be highlighted. First. The strategic and regulatory framework in relation to the electronic provision of services has been widely developed, but still leaves many questions related to its application. Second. Although there are good practices at the national level, they are isolated cases and do not lead to improvement of digital transformation indicators in Bulgaria. Third. The barriers that municipal administrations face are so numerous and of a fundamental nature that they could be grouped into two main groups – internal and external. *The external barriers* that have the greatest impact on the performance of the AES are related to the lack of policy coordination at the national level regarding digital transformation, as well as the institutional continuity of the AES, the regulatory constraints arising from the complicated legal framework, the problems related to the electronic signature, and last but not least, user attitudes towards using AES. The internal barriers arise from the external conditioning of the process and are deepened at the level of administrative capacity by the complex nature of the services, directly related to financial constraints and the lack of clear instructions for the progress of the processes. Fourth. The identification of barriers, good and bad practices in digitalization of administrative processes in municipalities characterize the current situation and are an important step in the search for an optimal solution to overcome the problems. What solutions are advisable for specific administrations is the subject of future research and publications.

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SOCIAL ENTERPRISES AS A MEANS OF URBAN POVERTY MITIGATION: AN EXPLORATION

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ABSTRACT
The first, eighth and tenth of the UN sustainable development goals focus on poverty alleviation, decent work and economic growth, and reduced inequalities. Fast developing nations are experiencing rapid urbanization leading to widespread urban poverty. Neoliberalism and the shrinking phenomenon of welfare state have drastically reduced governmental role in containing the situation, shifting the focus to nonprofit and private sector, making them more involved and responsible. This has led to rapid emergence of social enterprises as government mechanisms alone is not sufficient to address complex social issues like unemployment, poverty, or social exclusion. This study explores how social enterprises can be positioned as a viable solution towards mitigating the effects of urban poverty. This exploratory study starts off with an investigation of the different operational models of Social Enterprises (SE) with an objective of explicating the phenomena of social enterprises and arrive at a definition which suits the study. It further looks at the available literature on social enterprises and poverty leading to a detailed analysis of social enterprises – poverty alleviation (SE-PA) landscape. We found that the available SE-PA research is heterogenous in nature and hence lacks a solid theoretical foundation that can sufficiently explain the role played by SE in PA. Hence, based on the outputs of the review and analysis, a conceptual framework is proposed. By empirically testing the conceptual framework, we hope to provide a model that is capable of comprehensively depicting the SE - PA phenomena and that the findings will go on to influence policy and legislation to recognize the SE entity for what it is and their corresponding needs.
Keywords: *Inclusive Development, Poverty Mitigation, Social Enterprises, UNSDG, Urban Poverty*

1. INTRODUCTION

Despite the positive socioeconomic progress in the past decade, poverty remains to be a persistently pervasive problem globally. Low-income countries are still deeply entrenched in poverty where even the most basic of needs are not met. Although extreme poverty has reduced over the years, many are still vulnerable towards external economic shocks with 745 million individuals subsisting with a meagre $1.90 per day (Kharas and Dooley, 2018). Income inequality is still an ever-present issue and has gotten worse than it was three decades ago, as economic development and instability-induced crises are experienced unequally by the developing world (Alvaredo et al., 2015). Furthermore, the current global crises like climate change and COVID-19 threatens to plunge 132 million people into poverty, with regions like Sub-Saharan African and South Asia being hit the worst (The World Bank, 2021). The recent United Nations Sustainable Development Goals Report (2022) highlighted the setback of four years' worth of poverty mitigation efforts due to COVID-19 and that existing poverty rate projections may be misguided if the cumulative effects of climate change, geopolitical tensions, and rising inflation are accounted for. Current estimations see an additional 75 to 95 million more people to be subjected into extreme poverty.

Social Enterprises (SE) are considered to be an effective contributor in solving the poverty dilemma. But it is not until recently that we are seeing a surge of interest in SE development. This emergence of SE can be attributed to many things, but for one it is a natural response to address the lack of service provision by both public and private entities. To start with, the relevance of welfare state is shrinking in its size and responsibility leaving a service gap that probably SEs could fill in. Fotheringham and Saunders (2014) notes that the shrinking phenomenon of the welfare state can be attributed to the rising influence of neoliberalism as its views on social problems as individual issues minimize the importance and priority of social protective structures. Cooney et al. (2010) add that the retrenchment of the welfare state and the shifting responsibility from government to non-profit and private organizations would become the key drivers for the emergence of social enterprises. The emergence of social enterprise is also caused by the growing need to address complex social issues like poverty, unemployment, or social exclusion (Alvord et al., 2002). According to Ali, Abdul and Sarif (2016), these social issues are often not sufficiently addressed by the public sector, and the private sector often lack proper incentives to provide solutions. The shrinking welfare state, the shifting of responsibility from public to non-profit, and the growing social problems are part of the reasons that social enterprises are becoming an emerging trend. Despite the popularity and potential that entails the Social Enterprise - Poverty Alleviation (SE-PA) narrative, no substantial research has been conducted in this field as was discovered after reviewing more of the SE-PA literature (Imanipour et al., 2020). There has been very little enquiry into the role that entrepreneurship plays in the SE process or outcomes, despite the fact that enterprising or business-minded approaches to social welfare are highly regarded (Diochon, 2013). SE field itself is considered nascent, with the majority of publications occurring in the past decade (Gupta et al., 2020). Saebi (2019) has also noted that this could be attributed to the inherent diversity of the SE phenomena. The contention of SE definition leads to a broad or loose set of definitions that captures a wider sample of SE phenomenon. As such, SE can be considered to operate on a wide array of social issues, industries, stakeholders, and business models. This wide variability has also led to weak consensus over theoretical, definitional, and methodological standards in the field (Ali et al., 2016; Rawhouser et al., 2019) impeding legitimate research endeavours to illuminate the SE - Poverty phenomena. This article aims to explore how SE engages in poverty mitigation. This is done by providing a conceptual framework that is theoretically grounded and robust mapping of key concepts with explanatory tangents. The paper starts off with the explanation on the nature/conceptualization of SE and proceeds to discuss poverty conceptualization. Then a detailed exploration of the SE literature is conducted in relation to poverty mitigation. The analysis culminates in a framework, proposed to engage the query for poverty mitigation research in a SE setting.

2. WHAT IS A SOCIAL ENTERPRISE

Discussing on the concept or the idea of social enterprises is not necessarily a straightforward endeavor. As the definition debate on what constitutes a social enterprise can be a protracted discussion on its own as there is simply no universally agreed upon definition (Ali et al., 2016; Defourny and Nyssens, 2017; Adnan et al., 2018; Saebi et al., 2019). This lack of agreement on a definition is caused by various reasons. For one, interpretations on SE can come from a variety of backgrounds or expertise, resulting in different aspects of SE being highlighted/emphasized (Ali et al., 2016; Defourny and Nyssens, 2017). They tend to occur as well in profit and non-profit spaces which can lead to more ambiguity as practices overlap (Simpson, 2015). And given the variety of forms and approaches a SE can take, it becomes a heterogenous entity that is naturally difficult to comprehend (Saebi et al., 2019).

Despite the issues present, we identified two fundamental aspects of SE (Ali et al., 2016; Dacanay, 2017; Adnan et al., 2018; Saebi et al., 2019). Firstly, SE are organizations that have an explicit social mission to make an impact on some disadvantaged group. Their social mission is often the reason for venture creation and their core operations tend to be driven by their social goals. Secondly, SE engage in production/trading activities with the market through the provisions of products/services. Their trading activities may follow a double-bottom line principle, where they aim to have 'trading activities be in themselves mechanisms' for social impact. In short, social enterprises are a type of hybrid organization that holds the primary aim of social-value delivery while securing income via market-based interactions that occur across the three sectors namely government/civic, private profit, and non-profit sectors. It is the hybrid combination of these two aspects that makes SE a unique organizational category. However, even with the aforementioned aspects it is still difficult to clearly demarcate SE from other social-entrepreneurial-philanthropic counterparts due to the overlapping of many characteristics. Saebi et al. (2019) in their article denotes the differences between the similar entities very aptly:

- Commercial enterprises share a similarity to SE in a sense that they are both entrepreneurial minded to look for business opportunities and apply innovative business solutions. But their difference lies in the fact that social enterprises identify their 'business opportunities' in societal problems like urban poverty or social inequality.
- Corporate social responsibility or CSR differ from social enterprises from the fact that they are still profit-oriented (to increase shareholder value appropriation) and they are seen as an institutional obligation for societal engagement and accountability.
- And for non-profit and philanthropic organizations, they differ through their income generating activities as they tend to be temporary and is not central to the organization (charities, fund-raising etc.). Whereas for SE, their income activities are indefinitely operating as a central part of their organizational strategy.

SE have been perceived to be an effective mechanism towards poverty mitigation. Due to their hybrid nature of co-creating social and economic value at the same time, they could be financially self-sustainable (MaGIC, 2015). Due to the shifting needs of the poor and market-business pressures, SE are forced to come up with different strategies in how they co-create social and economic value. In her seminal work, Alter (2007) accounts the different approaches/mixes of socioeconomic value creation of SE and organizes them into what she calls, 'operational models'. Operational models are not necessarily representations of organizational or legal structures, but instead they can be viewed as 'organizational configurations of value; to create social value and economic value'. The literature highlights four prevailing strategies that SE utilize to mitigate poverty, namely: Social cooperatives, Microfinance Institutions, Fair trade organizations, and Work-integrated social enterprise. Social cooperatives are organizations that are jointly owned by its members, they commonly engage in the sharing of skills/resources that go into the provisions of products/services that are aimed at benefitting cooperative members (Alter, 2007; Defourny and Nyssens, 2017). Cooperative owners are usually primary stakeholders themselves, and can often be comprised of small producers of similar product line (farmers, fishers, vendors etc.) and community members with similar social needs (poor entrepreneurs, disabled persons, poor women etc.) (Alter, 2007; Dacanay, 2017). The collective contribution of cooperative members often allows them a variety of services: market information, technical assistance, collective bargaining power, bulk purchasing, access to member product/services, market access (Alter, 2007). SE derive their financial sustainability through the sales of products/services. The revenue is used to cover cost of cooperative services and subsidizing services.

Microfinance (MF) institutions are organizations that provide the poor with access to affordable financial services and entrepreneurial development opportunities. They often target poor individual/group entrepreneurs who lack the funding/expertise to start their own microenterprises (Alter, 2007). MF are commonly known for providing low-interest credit loans for micro start-ups, the underpinning idea here is that with sufficient capital the poor can be empowered to break themselves free of the poverty cycle through investments into wealth generation and businesses (Cooney and Shanks, 2010). Other than microloans MF do provide other financial and business support services like savings account, micro insurance, business consultation, and value-chain development (Fotheringham and Saunders, 2014; Dacanay, 2017). They go on to achieve self-sufficiency by selling their services to the poor and the revenue generated is used to cover operational costs. Fairtrade organizations (FTO) are organizations that provide market access to the poor, they do this through a mixture of product development and marketing efforts (Dacanay, 2017). Alter (2007) in her article calls this operational model as the ‘Market Intermediary Model’, precisely because FTO acts as an intermediary between the poor and commercial market. The poor are often viewed here as suppliers of some resource, commodity, or consumer-ready good to which FTO provides their services in the form of marketing (brand development, media promotion) and product development (stylized packaging). The process of marketing and product development adds value to the products allowing them to sell at higher profit in the commercial market. Profits are given back to the poor ensuring financial stability with the FTO taking a commission that goes into covering their operational costs (Alter, 2007). Work-integrated social enterprise (WISE) are organizations that primarily aim to integrate the poor back into the mainstream labor market by providing employment and work training opportunities. The poor often experience a high barrier of entry into the labor market due to perceived status stereotype and lack of productivity, examples include disabled, homeless, incarcerated individuals, and women in poverty (Alter, 2007; Fotheringham, 2016). WISE circumvents this barrier by providing what Alter (2007) calls an ‘embedded’ SE that combines (embeds) its social program with its business operations. For example, the enterprise selling a product or service employs the poor and provides them on-the-job training with the aim of imbuing marketable skills that will allow for easier access into the labor market (Cooney and Shanks, 2010). On top of employment and training, WISE tend to be subsidiaries or partners of other non-profits and can offer other support services like life skills, emotional support, employment coaching, income supports, and subsidized housing (Fotheringham, 2016).

3. WHAT IS POVERTY

It is important to comprehend the concept of poverty before delving further into social enterprises and poverty mitigation. As the conception of poverty has changed and grown through the years to become a fluid and wide concept. Historically speaking, the most commonly used concepts are absolute poverty and relative poverty (Beker, 2016). Absolute poverty is determined as fulfilling income-based benchmarks in order to fulfill basic living needs. Relative poverty is determined as the unequal account of socio-economic statuses between the members of society. However, the conceptions have been criticized due to it being largely based on income-based dimensions (Nair and Sagaran, 2015). Currently, the accepted concept of poverty aims to move away from the rigid confines of income-based dimensions and towards wellbeing dimensions that are non-material or non-monetary (Leng et al., 2018). Examples of this can normally include dimensions like healthcare, education, social capital, basic utilities, or housing. The logic here is that poverty cannot only be understood in monetary terms but instead it should be seen as a multidimensional social problem with significant degrees of complexity and overlapping factors (Nair and Sagaran, 2015).

The phenomena where the poor remain poor is known as the poverty trap. It is a state of being sustained through self-propagating mechanisms that induce disadvantages and obstacles onto the poor (Beker, 2016). Another perspective known as the 'threshold effect' views poverty traps caused by insufficient capital beyond a capital stock; it views capital as essential in escaping poverty but only in critically sufficient amounts (Amendola et al., 2010). Balboni et al. (2020) conducted a test comparison by providing varied capital provisions (physical, social, human etc.). Results showcased that if capital provisions pushed individuals above a certain threshold level, they would indeed develop the necessary and sufficient assets to be self-sufficient, in other words, escaping poverty. This highlights the two important details on poverty intervention: magnitude, and leverage (Balboni et al., 2020). Poverty interventions need to not only provide capital but capital in sufficient magnitude to affect substantial changes in self-sufficient capacities. And, poverty intervention should aim to match the poor with opportunities that can leverage their capital stock. An example would be matching human capital for urban-based employment opportunities or providing physical capital in terms of farming equipment in a rural-based economy (Amendola et al., 2010). Poverty mitigation approaches should factor-in the elaborate nature of the poverty circumstances. Kotler et al. (2006) highlights the five important aspects of poverty to be considered for effective poverty mitigation efforts: 1) Heterogeneity of the poor demographic - Poverty mitigating strategies need to consider how poverty is manifested across different segments of society and make appropriate adjustments to cater different needs (Leng et al., 2018). 2) Importance of segmented market research - As mentioned, poverty is experienced variedly and thus would require extensive analysis/audit exercises to gain valid input from the poor themselves. 3) Poverty mitigation requires collaborative effort - The multidimensionality of poverty highlights the complexity of its mitigation, and would thus require effort from key stakeholders of both formal and informal sectors (Nair and Sagaran, 2015). 4) Poverty is cyclical - Poverty can be a dynamic state of being where individuals fall in and out of poverty due to changing circumstances, poverty mitigation efforts would do well to be mindful of these dynamic factors and determine what is within reasonable control. 5) Engaging poverty mitigation at local levels - Lastly, poverty mitigation cannot exist solely on policies at the national level but instead it is most impactful when done locally.

4. SOCIAL ENTERPRISE AND POVERTY MITIGATION

SE often seek to create social value to benefit their beneficiaries through a variety of methods. Alvord et al. (2002) discovered that successful SE interventions often take up forms like building local capacity, delivering resource packages, or organizing local movements. Sijabat (2015) argues that SE enable economic opportunities by providing access to financial services, delivering localized social innovations, and empowering the poor. Cooney and Shanks (2010) noted that SE by engaging in market-based transactions, allows for the creation of a job market catering access to those in poverty. In promoting social inclusion and empowerment, SE increase the decision-making power of the poor by involving them in the planning and decision making processes or giving equity ownership via board representation (Doherty and Kittipanya-ngam, 2021). These social interventions can be quite varied given the SE heterogeneity but tend to overlap in the roles they play. According to Simpson (2015), the social programs of SE tend to perform two functions; to stabilize quality of life statuses of the poor preventing further life degradation and, to propel the poor with relevant resources so that the poor are empowered to improve their life circumstances. In another study, Dacanay (2017) distinguishes the different roles that SE interventions can play. Transactional roles refers to interventions that are market or enterprise-driven, where they serve to increase capacities that will improve operational function of the SE. An example could be providing resources packages (fertilizers, farming tools) that help increase crop production of poor farmers.

Transformational roles refer to interventions that aim to empower the poor with the necessary resources to improve their wellbeing. Interventions like leadership training or scholarship programs are examples. SE maintains an awareness of the varied circumstances and needs of the beneficiaries they serve in order to develop social programs that not only address the issues they face but are also practically mindful of socio-economic plights present in poverty circumstances (Si et al., 2020). As a result, effective SE tends to have multiple co-synergizing interventions that reflect the multidimensionality of poverty (Weaver, 2018), the need for empowerment (Diochon, 2013), and practical sustainability (Fotheringham, 2014). All in all, SE offers a social mechanism which recognizes the issues of the poor that go unaddressed, create innovative solutions to address them, and alter institutional structures so that the poor could be integrated functionally. SE tend to operate in a variety of situations resolving poverty issues in grassroot bottom-up manner (Santos, 2012). But there has been very little research into the role that entrepreneurship plays in the SE process or outcomes, despite the fact that enterprising or business-minded approaches to social welfare are highly regarded (Diochon, 2013). Weaver (2018) notes that existing empirical works have yet to sufficiently explore the social issues nor the intervening techniques used by SE to address them. The overall goal of SE is to instill improvements in multidimensional human development, but the empirical works is lacking in the area of how the actions of SE enables the opportunities to satisfy human needs (Weaver, 2020). As previously mentioned, the combination of definition inconcensus, heterogeneity of SE phenomenon, and nascent field of SE has led to the theoretical and methodological foundations to be underdeveloped contributing to the challenge of valid and instrumental research (Saebi et al., 2019). There is a reasonable space of query within SE literature that requires explanation on the poverty issues, strategies, outcomes, and factors between that represent the SE-poverty phenomena.

5. CONCEPTUAL FRAMEWORK

This paper proposes that the capability approach is a suitable framework that can be used to capture and conceptualize the poverty-mitigating phenomenon of social enterprises. The capability approach is a normative framework developed by Amartya Sen as an alternative means of viewing human development (Weaver, 2020). The approach is commonly utilized for the purposes of evaluating social policies or programs, assessing the state of wellbeing, and developing well-being metrics or assessments. It has been used as a guiding framework for well-being measures worldwide, most notably the Commission on the Measurement of Economic Performance and Social Progress and the United Nations Human Development Index (Weaver, 2020). The approach views human development as comprised of 'capabilities' and 'functioning'. Capabilities refer to the freedoms or opportunities an individual has, to satisfy their needs. Whereas, functioning refers to the actualization of these needs as a result of said freedoms and opportunities (Sen, 1993). Contrary to the rigid understanding of poverty that uses resource-based wellbeing indicators (income etc.), capability approach instead focuses on what individuals are able to do or be in order to live a flourishing life. The premise for the shift from resource-based indicators to capabilities is that capabilities or opportunities are regarded as intrinsically more important than income. Income or resources are regarded as means to actual opportunities, whose value is circumstantially dependent and contingent. Sen (1993) argues that poverty in this sense is viewed as the deprivation of fundamental and basic capabilities needed for human flourishing. Hick (2012) adds that these capabilities can vary depending on the individuals' needs and wants. From simple capabilities that fulfill physical needs such as nourishment to bodily integrity to more complex capabilities like societal participation or the ability to live a dignified life.

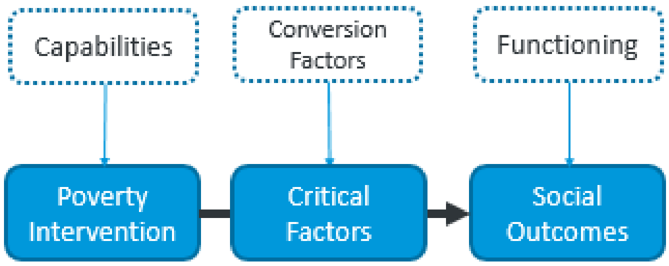

Figure 1: Social Enterprise and Capability Approach

There are several reasons as to why the capability approach may be a useful framework in comprehending the poverty mitigation phenomena of SE. Firstly, it offers a framework capable of comprehending the multidimensionality of human well-being beyond the rigid focus of resources. Second, its individualistic approach can account for the lived complexities of the poor when it comes to poverty mitigation as well as the heterogeneity of SE phenomena. Lastly, the framework functions as a useful tool to map conceptual elements of SE in a poverty mitigating phenomena. Scarlato (2013) notes that social enterprises can be seen as a means by which capabilities are disseminated. This was evidenced by the use of the capability approach as a tool to develop the Buen Vivir National Economic Development Plan to enhance human capacities. Weaver (2018) highlights that the act of social enterprises helping beneficiaries can be referred to as ‘capability dispersion’ or the act of dispensing capabilities to beneficiaries. We conceptually map ‘capabilities’ as the social programs/services offered by SE to beneficiaries, and ‘functioning’ as social outcomes/impacts on beneficiaries. In conclusion, the paper proposes a conceptual framework (see Figure 1) depicting how the capability approach integrates within a poverty mitigating phenomena of SE.

6. CONCLUSION

Social enterprise is a rising phenomenon with the potential to mitigate the effects of poverty. Occurring widely in various forms, structures, and configurations they are able to adapt and innovate solutions that address poverty issues at the grassroot level. This paper suggests capability approach as a foundation for exploring SE-PA landscape, given its ability to account for the multidimensionality aspect of poverty, the diversity in SE phenomena, and conceptualizing working elements in SE phenomena. We propose empirically testing the conceptual framework as the next step, to provide a model that is capable of comprehensively depicting the SE - PA phenomena and hope that the findings will go on to influence policy and legislation to recognize the SE entity for what it is and their corresponding needs.

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HARMONIZING THE TVET LANDSCAPE IN MALAYSIA VIA INDUSTRY-DRIVEN COLLABORATIONS: AN INDUSTRIAL PERSPECTIVE

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ABSTRACT

Conventionally and till the recent times, the TVET program in Malaysia has been spearheaded by the government with TVET-related activities principally carried out by TVET institutions. Various models were emulated including Germany's Dual Training System in this effort. Despite various strategies employed to strengthen and promote TVET as a form of general education, the desired goals have yet to be attained. One of the stifling factors has been the backseat involvement of the industries whence they should be the driving force. This prompted the government to make a strong advocation in the 12th Malaysian Plan (2021-2025) to harmonize the TVET ecosystem to nurture collaborative relationships among the key stakeholders such as the industry, TVET institutions, and the government. Hinging on this premise, this study is conducted in the Malaysian context to qualitatively explore strategies to foster collaboration between TVET institutions and local industries paying exclusive attention to industrial perspective. Adopting the subjectivist and interpretivist viewpoint ontologically and epistemologically, this inductive study was conducted to obtain perspectives of twelve industrial representatives across various sectors via semi-structured interviews on strategies to stimulate collaboration between the industries and the institutions with TVET program being industry-driven and the willingness of the industries to partner for this cause. By applying the thematic analysis technique, five recurring themes were identified upon achieving the point of saturation. This study opens further avenues for comprehensive research by investigating the perspectives of the institutions so as to recognize their contribution towards partnership and realizing the national TVET agenda now that the industry's thoughts have been studied.

Keywords: *Industry-institution Partnership, Technical Vocational Education and Training (TVET), Skills Development*

1. INTRODUCTION

Technical Vocational Education and Training (TVET) is defined as the amalgamation of education, skills development and training that links to a wider range of industrial and economic sectors encompassing production, services, and livelihoods (UNESCO, 2016). Vocational Education and Training (VET) are often interchangeably used as an equivalent to TVET (Naidu et al., 2013), taking place at the secondary, post-secondary and tertiary levels of education. It includes work-based learning, training, and professional development, leading to higher qualifications as part of lifelong learning (Kanwar et al., 2019). Historically, TVET began with full steam in Malaysia during the 1960's. It was introduced as a component of the Malaysian education system during the pre-independence era with the establishment of the Trades School in Kuala Lumpur in 1926. The initial two-prong objective was to (1) deliver trade education to the nation's youth and to (2) provide employment opportunities while reducing poverty. During this period, TVET was solely driven by the government with the institution playing a supportive role. Over a period, the institution began to expand to various states aimed at training the youths in the fundamentals of machinery rectification, electrical wiring, carpentry, and construction (Rasul et al., 2015). Thus, the role of the institution has taken a larger role in this equation. Post-independence, the government realized the potential of TVET in creating a competent workforce and began devoting attention to further developing the program. This has been expressed consistently since the First Malaysian Plan 1966-1970 till the recent Twelfth Malaysia Plan 2021-2025. This has resulted in Malaysia witnessing many TVET graduates securing immediate employment both in the public and private sector, becoming entrepreneurs, and pursuing further education. However, as industries and TVET institutions progress linearly towards achieving the national goal, two major predicaments present themselves; namely declining number of students enrolment into the program and skills set that does not fulfill the industry requirement which is also recognized by the Malaysian Ministry of Education (MoE) (2015). The inadequacy of TVET output in catering to the industry needs does not rise up to the scale of demand hence creating a gaping hole in skills creation. Not addressed, this problem could pose a severe impediment to the nation's productivity and economy. This is also endorsed in the 2nd Series of the Auditor General (AG) Report (2019), which states that the national agendas for TVET are yet to be achieved under the 11th Malaysian Plan. The report highlighted the presence of gaps in implementations in terms of management, program delivery, accreditations, competencies of teaching instructors and financial management. The significant dip in student enrolment rate into the program in 2020 compared to 2016 is also observed. The report says TVET programs produced 474,672 graduates from the year 2016 to 2020 in contrast to 900,000 job opportunities requiring skills from TVET graduates (Bernama, 2021). The Malaysian Education Blueprint 2015-2025 (Higher Education) further highlighted the dire need to forge collaboration between institutions as well as the industry. This would mean that the industries need to take a steering role to spearhead the TVET initiatives with the government and institutions providing a supporting role. The industries will need to drive partnership initiatives via apprenticeships or internships, practical training, simulations, and comprehensive employer training programs. Hence, the government began an aggressive movement to rope in industries as a fulcrum toward establishing TVET as one of the various education channels (MoE, 2015). Based on this premise, it is evident that industry-institution collaboration will be a panacea for the various predicament plaguing the development of the TVET agenda in the country. This study funded by the Fundamental Research Grant Scheme (FRGS) awarded by the Ministry of Education, explores the industrial perspectives on strategies to establish partnerships with TVET institutions and to seek their willingness to participate in partnership activities. The study aims to gather the viewpoints of industrial practitioners across various sectors on strategies to forge practical collaboration between local industries and TVET institutions.

2. LITERATURE REVIEW

The notion of collaboration between the industry and institutions has been widely discussed in various works of literature. Predominantly, it discusses the many forms of benefits partnerships may contribute towards seeking a solution to a particular issue. Specifically, it seeks avenues to form industry-driven partnerships to groom TVET students for the industry with the required skills and capabilities. The following review introduces the concept of collaboration and the dynamics of industry-institution collaboration. This would be followed by a discussion on the Triple Helix Model (THM) which further explains the concept of partnership between the industries, institutes and the government.

2.1. Concept of Collaboration

Gray (1989) defined collaboration as a progression where various parties view varying aspects of an issue and productively explore their disparities and work towards a solution that transcends beyond their individual capabilities. The purpose of organizational collaboration may depend on various key contingencies regardless it is external or internal to an organization (Oliver, 1990). While certain partnerships focus on evolving a shared vision among stakeholders, some aims toward resolving a predicament and some towards conflict management and resolution (Gray, 1989). Viewing from the resource dependency standpoint, Barringer and Harrison (2000) postulated that often organizations participate in partnerships to secure resources and to substantiate their authority to other organizations. Besides, organizations function in an unpredictable environment, allocated with limited resources, which naturally leads to interdependency among organizations to secure physical and monetary resources, information, and social legitimacy (Preffer and Salancik, 1978). Organizations engage in resource exchange that they do not presently own, produce or unable to produce when required to fulfil their tasks, and simultaneously increase their power (Aldrich, 1976; Cook, 1977; Preffer and Salancik, 1978). Conversely, should organizations fall short to notice their interdependence to resolve the predicament at hand, they are less likely or even refuse to collaborate with each other (Logsdon, 1991).

2.2. Institution-Industry Collaboration

Industry-institution collaboration (IIC) denotes the working relationship between an educational system and industries setting their mission on inculcating knowledge and technology exchange (Bekkers & Bodas Freitas, 2008). IIC boasts a long history (Oliver, 2004), as one of the platforms to develop organizations' knowledge power (Cricelli & Grimaldi, 2010). Recently, there has been a significant increase in these forms of collaboration due to the demands placed on both industry and institutions (Giuliani & Arza, 2009). For industries, the demands include rapid technological transformation, shortened product life cycles and forceful global competition that drastically transformed the competitive landscape for most organizations (Wright et al., 2008). The task of creating and developing new knowledge paired with the predicament of rising costs and funding issues has catapulted institutions to forge collaborations with local industries to empower them to remain relevant (Hagen, 2002). Mounting societal pressure has also been placed on the institutions, as the driving force of a nation's economic development and less as fulfilling social responsibility as how they have been observed in the past (Philbin, 2008). The demands placed upon both parties have increased the stimulus for developing IICs that target to boost innovation and economic effectiveness via knowledge exchange between business and academic domains (Perkmann et al., 2013). Additionally, IIC has been widely recognized as a tool to enhance organizational capacity in innovation where organizations utilize external networks in developing knowledge and innovation (Dess & Shaw, 2001). Malaysia has observed tremendous contributions from its institutions in terms of research initiatives since the introduction of Higher Education Strategic Plan (Ministry of Higher Education, 2007) and its associated action plans. The Ministry of Higher Education's Enhancement Plan of Strategic University-Industry Collaboration specifies that institutions are encouraged to engage with local industries to reposition and focus on their trajectories concerning growth, execution and sustainability of strategic partnership activities (MoHE, 2013). Following this, a set of directives for academia-industry placement was commenced in 2012 to support implementation plans. The guidelines stress upon placement of industry, government agencies, and non-governmental organisations as a competency-building structure for academic staff to offer a platform for academic staff to accomplish professional needs in their area of expertise, providing avenues for technology and knowledge transfer and strengthening their experience and knowledge to develop effective teaching techniques while generating meaningful research that that justifies industry requirements (MoHE, 2012). Another initiative was the idea of setting up an endowment board in institutions to facilitate skill-building opportunities through the provision of training and consultancy as well as exclusively designed continual education programs. (MoHE, 2012). Realizing the fact that the absence of industries' role in TVET development and implementation could impede the objective of the program being achieved, the government consistently explore the possibilities to nurture industry's active participation into the program. Given the importance accorded to supporting IIC to facilitate skill building among the future workforce, industry-driven approaches could prove to be crucial to promote lifelong learning among learners.

2.3. Industry-institution Collaboration Model in Malaysia

Bonoli and Wilson (2019) suggested three practices or paradigms of ideal industrial participation in the TVET system which are liberal, corporatist and universalistic models. In a liberal model, industries decide upon their level of involvement in the TVET program which is usually based on the labour market performance and supply and demand equilibrium and the government's involvement is minimal as it finds it difficult to compel industries to contribute towards human-capital development. The government's active initiatives to increase industrial participation in the country's TVET system characterizes the second paradigm, a corporatist one. Most programs, on the other hand, assume a diplomatic approach, by refining industry's interest and trust, to develop the country's labour force via myriad of schemes and incentives (Hussain et al., 2021). Yet, the accomplishment of this strategy is largely dependent upon the keenness of the industries to share the responsibility for human capital development with the TVET system. The universalistic paradigm on the other hand, is characterized by a government that practises high level of macro-corporatism, which maintains that all groups equally contribute towards the growth of the country and have a well-defined policy on the extent to which the local industries should participate in the TVET program, especially when it involves developing the future worker's competencies. Malaysia's approach to expand industrial involvement in the country's TVET program resembles the corporatist model proposed by Bonoli and Wilson (2019). The Malaysian government currently strives to work with local industries to develop and nurture human capital that appropriately fulfils current job demands as it has shifted its perspective that industries should ideally lead the national TVET system. Various incentives introduced by the government, such as tax exemptions, wage subsidies and training funding have sealed the relationship between industries and the TVET institutions.

2.4. The Triple Helix Model – Defining the role of the government, industry, and the institution

Leydesdorff and Etzkowitz (1996) stressed that the boundaries between the private and public sector, the industries and the institutions are radically fading. This provides an impression of intersecting interaction where the institutions assume the role of knowledge generating centres, industries as the production centre and the government assuming the role of a moderator which maintains a healthy interaction between the industries and institutions (Pique et al., 2018). Etzkowitz & Leydesdorff (2000) coined the Triple Helix Model (THM) to describe the interactions between the institutions, industries, and the government to foster innovation, economic growth, and entrepreneurship in a knowledge-based economy. The THM is described as knowledge transfer links which is categorized by the government, industries and the institutions. It revolves around three facets namely the relationship among the institutional spheres, the explanation of collaborative coverage, and the development of a connective system to establish collaboration (Nakwa and Zawdie 2016). Hence, it is a 'systematic collaboration' or as 'systematic channels' of connection where connections are established based on an institutional basis as 'formal channels' (Gunasekara, 2006).

THM describes the role of innovation in the community and each helix strives to retain its individuality. However, in today's environment, the interactions have evolved and it now takes the role of each other. Each actor in the Triple Helix model is connected to one another and help fosters the structure of parameters between them. For example, the industry gains values from the university by sharing and protecting knowledge (Etzkowitz and Leydesdorff, 1997). By the same token, the stakeholders of the Triple Helix, while performing their traditional functions, also involved in the roles of the others. An illustration of the Triple Helix model is illustrated as follows.

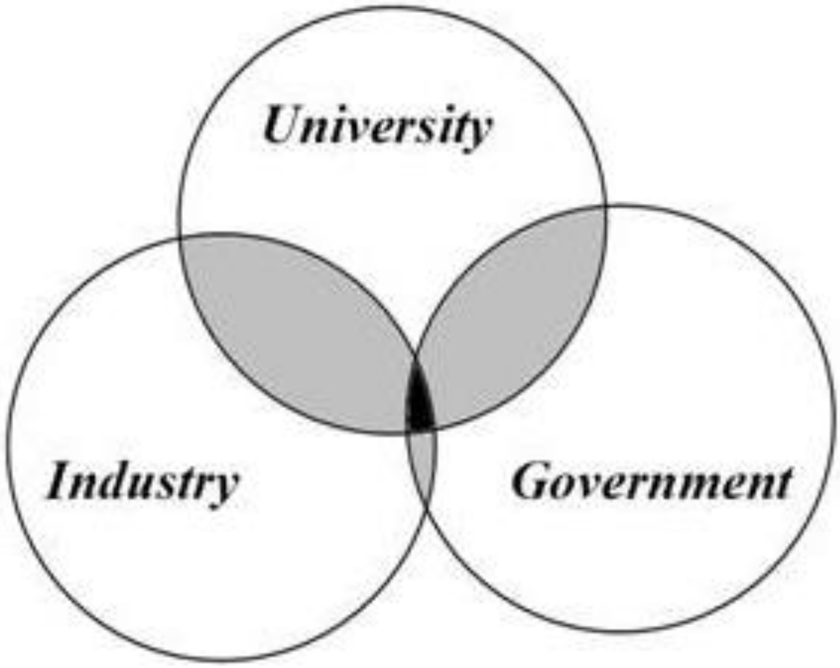

Figure 1: Triple Helix Model by Leydesdorff and Etzkowitz (1996)

3. RESEARCH METHODOLOGY

This qualitative study adopts an inductive approach to explore the viewpoints of the industries on strategies to form practical collaborations with TVET institutions. Espousing a subjectivist approach ontologically and interpretivist approach epistemologically, the study seeks to comprehend human's feelings, and emotions while placing the respondents in their natural settings to experience an intimate interaction without any interference. According to Locke et al, (2013) a qualitative inquiry is typically interpretive where the researcher is immersed in a sustained experience with the research respondents. Twelve industry participants were recruited across various industrial sectors to solicit credible information for the study. Semi-structured interview protocol was developed based on Creswell (2018) by including opening questions, content questions, probing questions and ending the session with appropriate closing instructions. Prior to each interview, the respondents were furnished with two documents namely 'participant information sheet' which describes the nature of the study, the importance of the study, potential questions to be queried and the definitions of terms. The second document, the 'participant consent document' seeks the respondent's consent and a guarantee of anonymity. A set of guiding questions were developed to keep the conversation grounded to the research questions and the objectives. Interviews were conducted virtually, and each respondent was allotted 30-40 minutes duration to express their perspectives. Throughout the interview sessions, the researcher took notes of crucial or unprecedented points put forth by the respondents to ensure crucial points are not missed.

4. DATA ANALYSIS

The study applied thematic analysis to analyse the gathered data as the aim of the study was to explore emerging themes on strategies to form a collaboration between the industries and institutions. Upon completion of each interview session, the researcher manually transcribed the conversation based on the recording to omit any unnecessary sounds or remarks which does insignificant to the research. The raw data was reviewed data to reflect on its overall meanings and contents. The coding of the data was done by organizing information by associating codes that belong to similar categories of words and labelling those categories with a specific term based on the key phrases uttered by the respondents. Patterns of prevalent codes were observed and then developed into themes. Each respondent was labelled as IP (Industry Practitioners) to maintain their anonymity throughout the study. Data was analysed till the point of saturation was achieved where there is no longer new emerging information from the respondents.

5. FINDINGS

The emergence of 5 themes was recorded: namely (1) Curriculum development and delivery collaboration, (2) Mentoring collaborations, (3) Joint Promotional Activity, (4) Infrastructure Collaboration and (5) Research and Development Collaboration. The key perspectives of industry practitioners which drove towards the emergence of themes are as follows.

Industries often encounter various problems in our daily operations, machineries, productions and employee performances. So, we need skills to remedy these problems. I think industry-based research conducted by TVET students and their institutions could help to solve our issues. And of course, the industries should and will be a part of the project. (IP-4)

Another pivotal opinion on infrastructure collaboration was:
I understand that more of than not, TVET schools often lack in materials such as machines and software or even the expertise needed to conduct the lessons. Here is where the industries can share their resources to teach TVET students with the state-of-the-art facilities and technologies so that students know how products and services are produced. This could easily be a way to establish collaboration between the industries and TVET schools. (IP-7)

As for joint promotional activities, an industry practitioner stressed that promotion is a powerful tool to entice potential buyers to purchase a service or product. Hence, the perspective on industry-institution collaboration is as follows.

The most impactful strategy to attract buyers to purchase our product is through effective marketing. Since at the time being the enrolment rates of students in the TVET institutes are not so convincing, perhaps, the government could bring together the industries and the TVET institutes to join force and promote TVET to the public. (IP-10)

Nine of the 12 industry practitioners are of the opinion that collaborative relationships with the TVET institutions with industry taking a leading role would bear favourable result provided that their opinions and inputs are given importance. The remaining three industry practitioners were hesitant to participate in partnerships as they do not see the point of doing so considering that often, industrial opinions are discounted and at times not given importance especially when it comes to curriculum development and delivery methods. Probably this could be the reason why Curriculum Development and Delivery collaboration tops the list of the themes recommended by industry practitioners. The emerging themes are presented as follows.

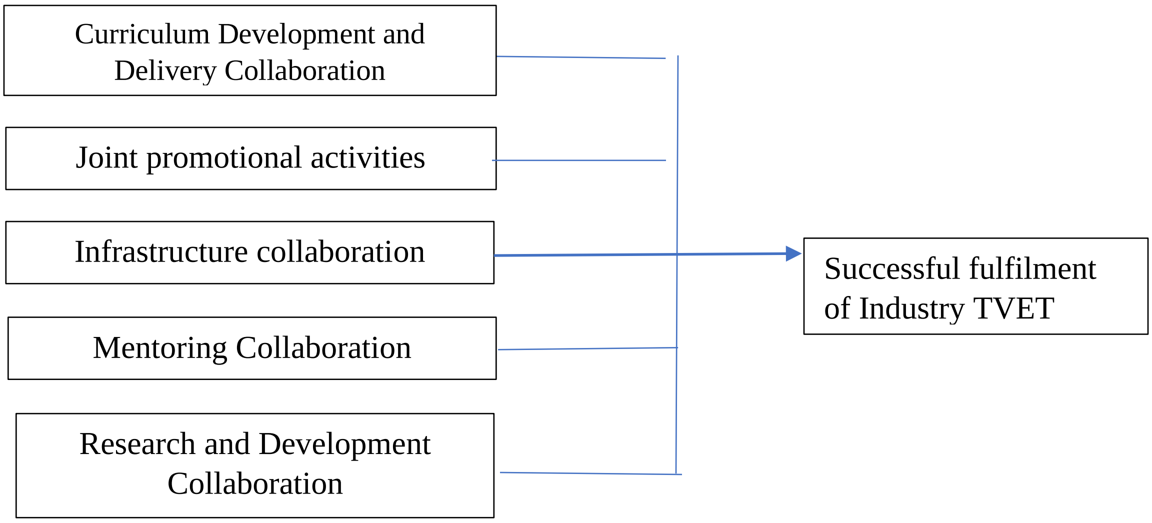

Figure 2: Emerging themes

6. CONCLUSIONS AND DIRECTION FOR FUTURE RESEARCH

It is now evident that TVET practices will not bear intended result without the participation of the local industries. Most importantly, no one TVET stakeholder will be able to work independently without engaging the entire ecosystem as the policy implementation requires synergies and intense involvement from all the relevant stakeholders. Concluding from the interview sessions, this study proves that TVET partnerships encompassing the crucial players; with industries taking the leading role, and the supporting role of institutions and the government will be able to bring forth the intended benefit aspired by the government to uplift the skill level of the workforce. This aspiration could be materialised via two approaches ie (1) Collaborative effort and (2) Allowing the industries to spearhead TVET related initiatives. Since this study was conducted qualitatively using relatively small sample size, for future research, a confirmatory study could be conducted by employing quantitative methodology applied to a larger sample size to validate the findings from the qualitative phase.

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A BIBLIOMETRIC ANALYSIS ON THE RESEARCH TREND OF INTERNATIONALIZATION WITH SUSTAINABILITY

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ABSTRACT
Internationalization and sustainability are the firms' two main growth avenues. A company can gain access to a variety of opportunities by internationalization. Sustainability practices have a positive effect on "the ecosystems, societies, and environments of the future" by adopting a long-term emphasis and a more inclusive set of responsibilities. This paper aims to deepen the understanding on the research of internationalization with sustainability. This study seeks to make an original contribution to the literature by providing a systematic analysis in the domain of internationalization and sustainability. The bibliometric analysis was carried out using the analytical tools of the Scopus database and Biblioshiny. The purpose of this study is to review the literature of internationalization with sustainability. The research literature was selected from journals listed on the Scopus database and analyzed trends in the production area of the research paper, citation trend, the contributions of authors as well as journals and top countries participation in research on international entrepreneurial intention. The intellectual structure of the research on this area was examined to provide essential insights into current advancements in this field as well as a wide guideline for future research in this area for researchers and academicians.
Keywords: *Bibliometric analysis, Internationalization, Sustainability*

1. INTRODUCTION
Designing goods, services, and internal processes to make it easier to expand into foreign markets is known as internationalization. The adaption of a specific good or service to one of those markets is known as localization. Your company can gain access to a vast array of opportunities by going global. There is a lot of misunderstanding over what internationalization actually constitutes. For others, it involves a variety of foreign endeavors, such as new international academic programs and research efforts; international linkages, partnerships, and projects; and academic mobility for students and faculty. Others interpret it as the distribution of education to other nations through novel arrangements like branch campuses or franchises and the utilization of various in-person and online learning strategies. For many people, it refers to the inclusion of a global, multicultural, or international dimension into the teaching and learning process. Others view programs aimed at international development or, alternatively, the commerce in goods and services related to higher education as internationalization(Knight, 2007). Trading globally can help you grow your company and increase its strength, profitability, and success. Sustainability practices have a positive effect on "the ecosystems, societies, and environments of the future" by "adopting a long-term emphasis and a more inclusive set of responsibilities" (Othman, n.d.). Sustainability initiatives help businesses "create possibilities and manage economic, environmental, and social risks," which enables "long-term value development" (López et al., 2007). International businesses are more sensitive to the dissatisfaction of key players due to their reliance on overseas markets. After all, International business are typically more noticeable overseas.

Any failure to fulfil the expectations of the relevant people tends to receive widespread media attention, harming the reputation of MNCs, increasing different foreignness-related liabilities, and eventually making it challenging to conduct business abroad. As a result, the demand from relevant parties has increased both domestically and internationally, fundamentally altering the business environment. For International business, the transition to sustainability has become essential (Chakrabarty & Wang, 2012). Sustainability is the capacity to consistently support or maintain a process across time. Sustainability aims to stop the depletion of natural or physical resources in business and policy contexts so that they will be accessible in the long run. Therefore, sustainable policies place a strong emphasis on how a particular policy or corporate practice will affect people, ecosystems, and the larger economy in the long run. The idea frequently corresponds to the conviction that the earth will sustain irreparable harm if significant changes are not made to the way it is managed. According to Karen McBride, everyone have faced with problems in the past, including, most recently, terrorism, a global financial crisis, racial injustice, and a two-year pandemic. For the past 150 years, the severe damage to the world has been accelerating quickly, yet a burning globe affects every element of social and economic life. It is high time the international education community recognized the environmental issue as a top concern. International educators must take responsibility for mitigating the effects of this multifaceted, multigenerational, and primarily anthropogenic disaster by seizing the opportunity we have as educators with unparalleled access to the global community (McBride Karen, 2022). The world has shifted to embrace sustainable practices and policies as worries about anthropogenic climate change, biodiversity loss, and pollution have grown more widespread. This has primarily been accomplished through the adoption of sustainable business practices and increased investments in green technology. Although higher education institutions (HEIs) view sustainability and internationalization as essential values, but together these two topics is rarely studied(Lopez et al., 2016). We anticipated that companies with a higher level of internationalization would perform and manage their environmental impact more effectively(Gómez-Bolaños et al., 2020). Gomez and hurtado discovered that while the amount of internationalization of enterprises had no detectable impact on environmental performance, it had a favorable impact on their environmental management. On the twin effects of internationalization on sustainability strengths (being good) and sustainability concerns (being bad), a divergent viewpoint is established (Park, 2018). According to park internationalization can benefit Corporate Sustainability in both good and harmful ways. Therefore, just stating that there is either a good or negative link between internationalization and Corporate Sustainability can be deceptive.

Objectives:
1) To assess the overall trend in the research production of internationalization with sustainability
2) To identify the overall contribution made by authors journals and organization towards the domain of internationalization with sustainability

2. RESEARCH METHODOLOGY

Bibliometric methodologies, often known as "analysis," have become well-established as scientific specialties and are an important component of research evaluation methodology, particularly in research and practice domains (Ellegaard & Wallin, 2015). Systematic literature review articles are methodological studies that employ database searches to extract research findings, as well as a theoretical discussion of a certain topic or issue (Editorial, 2007). The subject of internationalization and sustainability has been studied widely in several disciplines using a range of meta-theoretical assumptions and methodologies. Bibliometric analysis was conducted to enable a systematic review of the literature on the international entrepreneurial intention to satisfy the goals of understanding the research trajectory using Biblioshiny. A bibliometric analysis consists of using quantitative statistical analysis and publications to the citations in question. The purpose is to find the items that have the most impact in the analysis of cocitations, keywords associated with the theme, authors, and journal publishing (Pittaway et al., 2004). In this review, the researcher focused especially on the research trend of internationalization and sustainability.

2.1. Defining appropriate term

The first stage is to define and finalize the database that will be used to source the literature. The Scopus database was used to find research literature on internationalization for this study. Scopus was chosen because it is one of the most comprehensive databases of research literature in the field, which includes papers in the domain of international entrepreneurial intention. The Scopus database also allows academics to export data in a consistent format, making it a popular tool for scholars conducting systematic literature reviews. Selecting keywords was the next stage. For a more holistic and thorough search, the terms "internationalization" was employed. The keywords were found using the "Title, abstract, and keywords" search criteria. In July of 2022, the search was conducted. The initial search results have been presented in the next phase. The Scopus database generated 23,982 results for the keyword search.

2.2. Screening the search result

Research papers from articles, book chapter, conference paper, review book, editorial, conference review and review papers were chosen, except note, erratum, short survey, retracted letter, data paper, abstract report and other publications. After the limit of document type total 23,734 results found. Limit on subject area of social science, business management and accounting, economics, econometrics and finance, art and humanities, environmental science and decision making were applied. Only research papers written in the English language were included in the search. After the application of the above filters (screening) 20,906 research papers found. To study the internationalization and sustainability, applied filter on the keywords and set the limit to the keyword “sustainability”. After the application of the above filters (screening) 155 research papers formed the final sample set to be used for further analysis. These research papers were subsequently downloaded from the Scopus database in a comma-separated values (CSV) file for further analysis.

3. ANALYSIS AND RESULTS

3.1. Initial data statistics

The final set of 155 was chosen as the sample set for the bibliometric study. Fig 1 shows the annual production trend in the research area of internationalization with the keyword sustainability. Research in the area of internationalization with sustainability is increasing and in 2019 it is very popular. Table 1 represents the main information about the data. Over 434 authors wrote research papers on the topic of internationalization with sustainability, resulting in 155 publications published in 97 journals in past, suggesting significant interest in the subject area. The number of articles as single author is only 27 and co-authors per doc is 2.9 , the field has seen a lot of collaboration between researchers and academics.

Table following on the next page

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1995 – 2022
Sources (Journals, Books, etc)	97
Documents	155
Annual Growth Rate %	10.27
Document Average Age	4.7
Average citations per doc	14.16
References	10116
DOCUMENT CONTENTS	
Keywords Plus (ID)	553
Author's Keywords (DE)	657
AUTHORS	
Authors	434
Authors of single-authored docs	27
AUTHORS COLLABORATION	
Single-authored docs	27
Co-Authors per Doc	2.9
International co-authorships %	21.94
DOCUMENT TYPES	
Article	128
Book	1
book chapter	5
conference paper	10
Editorial	3
Review	8

Table 1: Main information of the Data

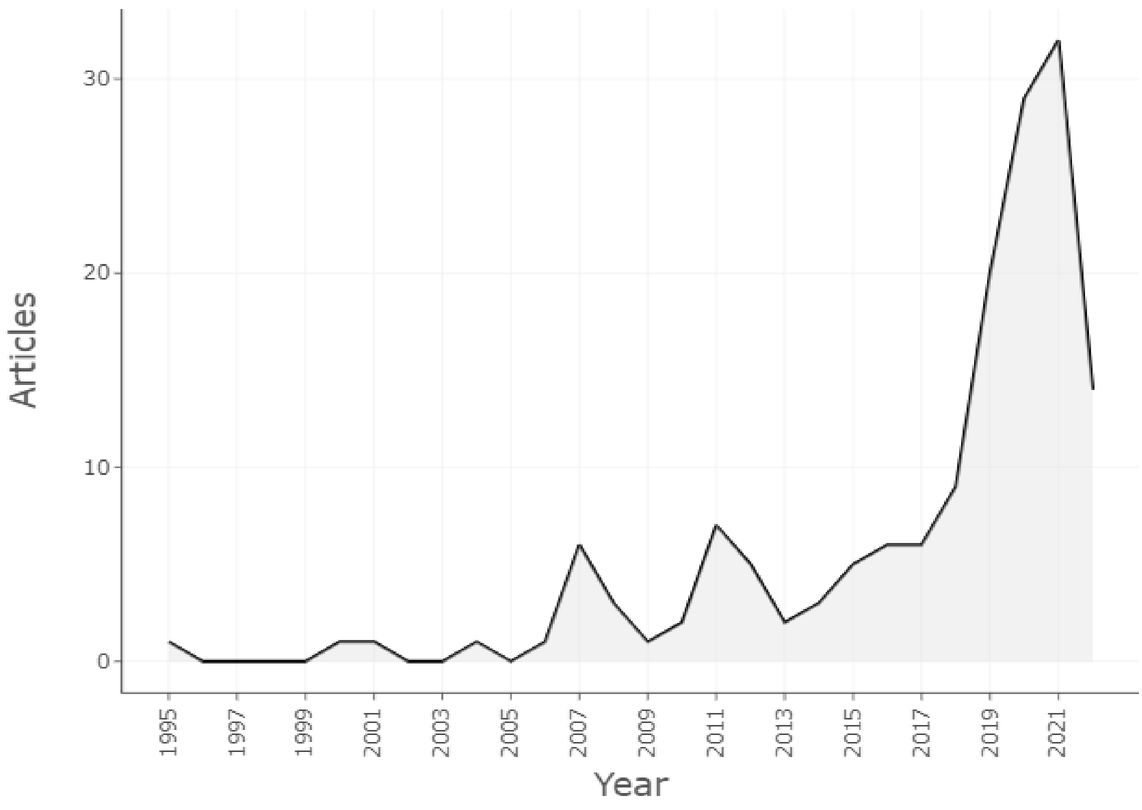

Figure 1: Annual Scientific Production

3.2. Citation trend

The research was then conducted based on the average number of citations/citations in papers linked to internationalization with sustainability, both on a per-year and per-article basis. The period of research carried out under this theme was published from 1995 to 2022. According to Table 2, most articles linked to the issue of internationalization with sustainability were published in 2021, with a total of 32 documents. The highest total citation average for each article happened in 2010, with an average of 130.50 citations. Whereas for the average annual citation, the research with the highest citation occurred in 2010 at 10.88. This shows that papers published in 2018 and 2010 are cited more than any other year in the internationalization with sustainability theme.

Year	N	MeanTCperArt	MeanTCperYear	CitableYears
1995	1	6.00	0.22	27
1996	0	0.00	0.00	0
1997	0	0.00	0.00	0
1998	0	0.00	0.00	0
1999	0	0.00	0.00	0
2000	1	2.00	0.09	22
2001	1	41.00	1.95	21
2002	0	0.00	0.00	0
2003	0	0.00	0.00	0
2004	1	0.00	0.00	18
2005	0	0.00	0.00	0
2006	1	4.00	0.25	16
2007	6	73.50	4.90	15
2008	3	1.67	0.12	14
2009	1	4.00	0.31	13
2010	2	130.50	10.88	12
2011	7	40.71	3.70	11
2012	5	15.80	1.58	10
2013	2	23.00	2.56	9
2014	3	7.00	0.88	8
2015	5	4.80	0.69	7
2016	6	8.33	1.39	6
2017	6	11.17	2.23	5
2018	9	30.22	7.56	4
2019	20	14.05	4.68	3
2020	29	4.90	2.45	2
2021	32	4.13	4.13	1
2022	14	2.29		0

Table 2: Average citation per year

3.3. Three field plot

Fig 2 represents the three-field plot image of the data. The Three Fields Plot image above is a picture consisting of 3 elements: the name of the authors, a list of country's names, and the keywords. The three elements are connected by a gray plot, which is related to one another.

Starting from the countries name, each country shows the author who often contributes to its publication. Each writer shows the keyword they often use for research conducted with International entrepreneurial intention research. The size of the rectangle illustrates the large number of publications associated with each of these elements.

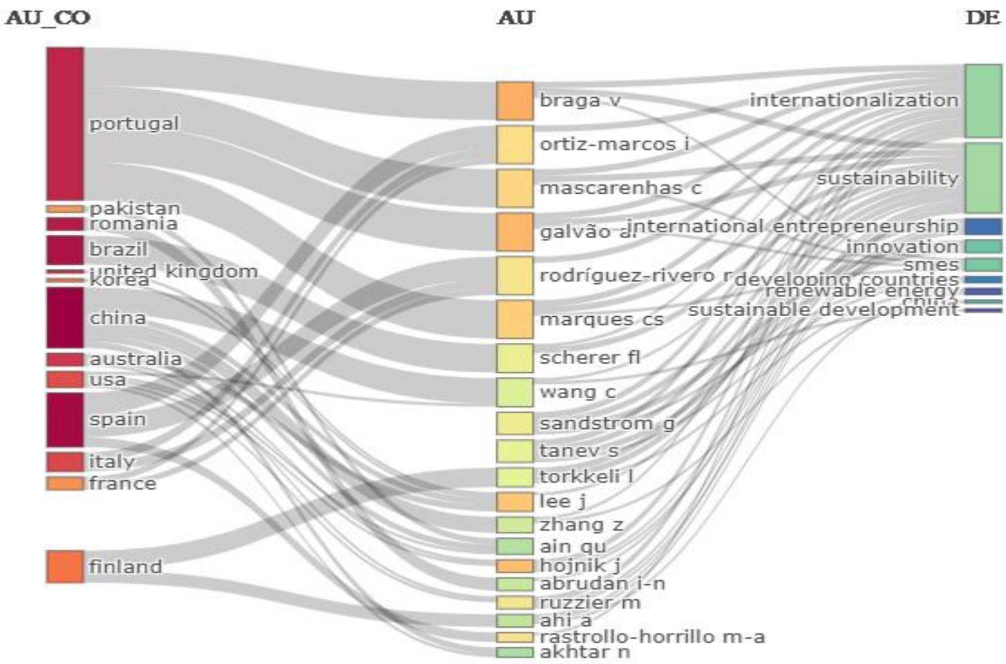

Figure 2: Three field plot

From the picture above, it is known that in the first element, there are 13 countries in the Three Fields Plot that publish the paper on the theme of Internationalization with sustainability. The top country that publishes the highest number of papers on the theme of Internationalization with sustainability is Portugal, which is depicted with a red rectangle connected to several authors, namely Braga V.,Ortis marcos., many more. Next, go to the second element in the middle of the image, which shows the author's name, where several authors are linked with countries. Besides, the author will also be associated with topic keywords often used on the image's right. Where in this study, there were 20 top researchers enrolled in this plot. The size of the rectangle indicates the respective quantity of research publications from each author. As for this study, the authors mostly publish Internationalization with sustainability themes, namely Braga V., Ortiz-Marcos I., Mascarenhas C., many more, which are depicted by yellow, green rectangles. Finally, the third element describes the keywords of the research topic on the right side of the picture. Each keyword is connected with writers who write a lot on related topics. From the results of the image, there are 9 keywords listed. Of all the topics that appear, the keywords often appear marked with green and blue rectangles. This illustrates that the words internationalization and sustainability are closely related to research topics.

3.4. Country and affiliation statistics

Table 3 provides the country-wise scientific production of a research article in the field of internationalization with sustainability for the period under consideration for the total 41 countries. China is the topmost contributing country with 57publications followed by spain with 52 publications. India is not the part of top 10 countries. Bulgaria Egypt, Hangry and Latvia were last in the list with only one publication.

Country	Production	Country	Production	Country	Production
CHINA	57	FINLAND	7	IRAN	3
SPAIN	52	NETHERLANDS	7	NEW ZEALAND	3
BRAZIL	33	SOUTH KOREA	7	NORWAY	3
ROMANIA	29	FRANCE	6	SWITZERLAND	3
PORTUGAL	27	PAKISTAN	6	ESTONIA	2
UK	24	SLOVAKIA	5	GREECE	2
AUSTRALIA	19	SLOVENIA	5	ICELAND	2
GERMANY	19	SWEDEN	5	POLAND	2
ITALY	18	CYPRUS	4	SAUDI ARABIA	2
USA	15	CZECH REPUBLIC	4	BULGARIA	1
COLOMBIA	14	SOUTH AFRICA	4	EGYPT	1
INDIA	10	CANADA	3	HUNGARY	1
MALAYSIA	9	DENMARK	3	LATVIA	1
JAPAN	8	INDONESIA	3		

Table 3: Country wise production

4. CONCLUSION

This report presents a structural bibliometric analysis of research conducted in the field of internationalization with sustainability. The bibliometric analysis reveals that internationalization with sustainability research has aroused the interest of a number of academics and researchers, with the majority of publications in this field produced by authors working together. Over 434 authors wrote research papers on the topic of internationalization with sustainability, resulting in 155 publications published in 97 journals in past, suggesting significant interest in the subject area. The number of articles as single author is only 27 and co-authors per doc is 2.9 , the field has seen a lot of collaboration between researchers and academics. According to the geographical distribution of the research, China is the leading contributor in terms of both the number and quality of research papers produced. As far as India is concerned, there is a dearth of study in the field of internationalization with sustainability; consequently, academic institutions in India should support more research in this area. According to the three field plot graph the authors, who mostly publish International entrepreneurial intention themes, namely Braga V., Ortiz-Marcos I., Mascarenhas C., many more and internationalization and sustainability are closely related keywords on the theme of internationalization with sustainability. This study directs academics and academicians in identifying growing research trends in the subject of internationalization with sustainability, as well as exploring prospects for future research. It gives information about the knowledge structure of internationalization with sustainability.

4.1. Implications

A bibliometric analysis is a quantitative study of the research literature in a certain field over time. This study has outlined the research work done by the researchers in the domain of Internationalization with sustainability research in the past based on the data set that was used for the bibliometric study, in addition to providing various metrics of analysis concerning with the topic. This would provide a guidance for future researchers on hypotheses that may be used as a foundation for their research on internationalization and sustainability.

4.2. Limitations And Future Scope Of The Study

One possible drawback of the study is that it only used the Scopus database to find research papers; in the future, researchers may try to add other databases as well. Another potential drawback is that citation data and patterns are highly dynamic and subject to change in the future. Different cultural context also required for determining the internationalization with sustainability. Future research should focus on the more positive aspects of relationship of internationalization and sustainability of small and large businesses. Overall, research on the topic is expanding at a reasonable rate around the world. This research aims to provide an all-encompassing and comprehensive overview of the research completed to date. However, there is still a lot of potential for research in this field, and several gaps were discovered through bibliometric analysis of the abstracts of the research papers in the sample set of publications.

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CIRCULAR ECONOMY OF PLASTICS: A PRACTICAL APPLICATION IN VIETNAM

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ABSTRACT

The purpose of this study is to expand on the knowledge of the Circular Economy, recognized as a sustainable alternative model to a linear economic model. It looks at how to apply a circular economy of plastics in a local neighborhood of Ho Chi Minh, with the aim of finding concrete solutions to plastics pollution. The methodology applied in this research, gets inspiration from the design study methodology, which is a 'problem-driven' research approach, where the aim is to find practical solutions to solve a real-world problem (Plastic waste) in consultation with all stakeholders involved in the process, and by considering the end users (local community). This study uses a business case study and an abductive approach along the logics of a Design Thinking process from analysis to abstraction. A multidisciplinary team was set up to conduct the research with the technical support of Vietnam Starbucks top managers. The research aims at designing a new local waste management system using as reference one store of Starbucks and at building garbage bins made from the plastic materials recycled through the upgraded waste management system. The result of the study is the design of a new waste management system which embeds the principles of the circular economy with the opportunity of replicating it in other stores and sites. One of the main findings of this project is that preunderstanding how the local waste management system works from the perspectives of the local stakeholders and end users and redesigning the system through a design approach with a multidisciplinary team, are critical factors to the successful implementation of the circular economy model.

Keywords: *Sustainability, Circular Economy, Plastic waste, Design Methodology, Vietnam*

1. INTRODUCTION

The Glasgow Climate Change Conference (COP26) reinforced more than ever before, the need to act now, if we want to meet the targets set in Paris in 2015: achieving a net-zero emissions by 2050 to keep global warming at 1.5˚C. There is now a global consensus on the urgency of addressing sustainability challenges especially those related to climate change, by prompting energy transition at all costs to curb the increasing of CO2. However, a recent study of Ellen McArthur Foundation stresses that only focusing on energy transition, it will address partially the problem (Ellen McArthur Foundation, 2021). Energy transition is a necessary solution but not sufficient one, to stop the alarming unsustainable path of our world economy. Attention should also be put on a better use of our natural and human resources while producing goods and services, embracing the concept and application of circular economy. Thus, the need to redesigning our economic system with circular strategies and approaches, to manage resources in a more efficient and effective way for the benefit of all. Fundamentally it is the time in which we need to think systemically and critically to find the most adequate balance between the needs and demands of growing world population and planetary boundaries[1] (Ellen McArthur Foundation, 2017, 2020). In this research special attention is put on the circular economy of plastics, looking at plastics as a valuable resource, and its practical application to address plastic pollution in Vietnam.

[1] The circular economy principles look at how to eliminate waste and pollution, to circulate resources and materials within the economy and to regenerate natural systems, so that it can help reducing emissions during production and distribution processes and make the economy less vulnerable to the availability and accessibility of resources.

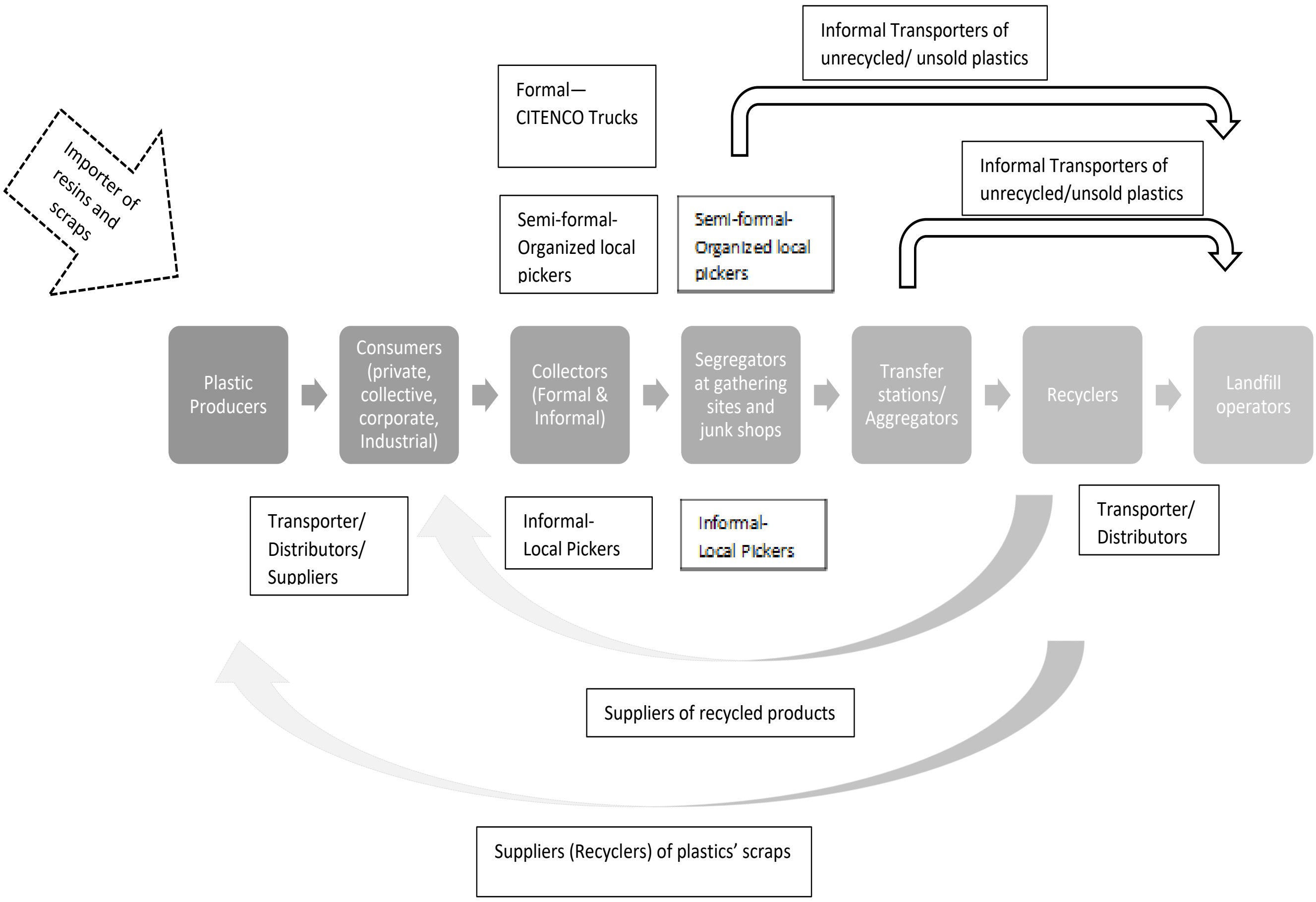
A research through design methodology using a business case study is applied to gain an in depth understanding of local plastic waste management in one store of Starbucks Vietnam in Ho Chi Minh City[2], and to re design a new system and products for the store to address this challenge, in view of generating social change and contributing to sustainability. In a more elaborated term, the research follows the design methodology of Sedlmair et al. (2012), which steps are: *Analysis*, to enable the translation of the problem into abstraction through visualization; *Real-World Problem*, by abstracting data and tasks to define the problem and addressing it by using ‘real users’ and real data; *Design*, by creating practical solutions, either by making a project or shaping a system to address the problem and visualize it; *Validation* or assessing the problem and solutions with users; *Reflection* by writing up findings and proposing recommendations and guidelines for applying the solution.

2. ANALYSIS

Over 353 million tons (MT) of plastics consumed globally, of which 40% of packaging (OECD, 2022), Vietnam is considered one of the countries which accounts for the highest rate of ocean plastic waste. Aproximately 80% of plastic debris found in rivers and oceans originate from land streams, while the remaining 20% is estimated to come from fishing and commercial maritime activities (Jambeck et al., 2015). In 2016, Vietnamese consumed about 1.2 MT of plastic packaging at household level per year, of which 0.436 MT of PET bottles and 0.04 MT other plastic bottles, 0.332 MT plastic film and bags, 0.202 MT plastic cups, cans and other containers, 0.214 MT of other plastic packaging. This accounts to an aproximate amount of 45kg of plastic consumption per person per year, of this mainly single use plastic packaging (WWF, 2020, 2021). Most recent data reveals that the proportion of plastics waste in urban solid waste is approximately 16% (instead of 6% in 2012) and there is an increasing trend to solid urban waste generation, which was in 2019 around 1.2 kg per person per day (Akenji & Bengtsson, 2019; Kieu Le, Strady & Perset, 2016). In 2019, plastic packaging amounted around 35% of the revenue generated from all plastics consumed in Vietnam (World Bank, 2021). Vietnam plastics industry is highly contributing to the national economy, in 2019 for aproximately US$17.5 billion with a proudction of 8.89 MT of plastic products (WB, 2021). Though, the industriy is highly dependent on resins' imports for more than 3 MT in 2019. The recent Pandemic, the expansion of e-commerce and the volatily of fossil fuel prices, have triggered an increase of both production of virgin plastics and consumption. One of the major cause of plastic waste into the ocean, is connected to poor waste management systems at urban and rural levels (Kieu Le et al., 2016). The waste management system of Vietnam follows a quite linear approach due to the limited recycling capacity in the country, thus most of the plastic waste, which in 2019 was estimated at 2,500 tons per day, is disposed in landfills, buried and/or incenerated (Lich, 2018). The Environmental Protection Agency estimated that around 40% of collected waste leaks out the waste mangent system or ends up in inadequate landfills, often located on islands and close to the coastlines, releasing un degradable waste into ocean (Turk, C., 2021). The Chinese import's ban of waste in 2019, triggered an increase of plastics' scrap's import and consequent waste in Vietnam. So far, mechanical recycling is the most common method of recycling of PET and PP. Other polymers are either simply grinded and shredded into pellets and exported, or are incenirated with other waste materials. In 2019, Vietnam managed to recycle about 33 percent of the key plastic resins. The remaining amount, about 2.62 MT of plastics are not recycled, resulting in the loss of 75 percent of the material value of plastics, which is equivalent to US$2.2 billion to US$2.9 billion per year (WB, 2021). The waste managemnet system of Vietnam has multiple stakeholders which influence the effectivenss and efficiency of the system.

[2] Starbucks Vietnam is operated by Viet Idea Food & Beverages

The graph 1 below helps to visualize it, mapping stakehodlers along the supply chain:



Graph 1: Waste management system in Vietnam
(Source: The Author)

3. REAL WORLD PROBLEM

The situation of plastic waste pollution is aggravated in urban areas, where the increasing amount of solid waste is not supported by the improvement of the overall waste management system. In 2018, Ho Chi Minh City discarded about 8,900 tons of domestic solid each day, 76 percent of which was treated by landfilling (DONRE, 2018). Only 14.7 percent was the plastic waste to be recycled, which indicated that about 1308 tons of plastic were recycled each day. The rest of solid waste (9.3%) was burned. The waste management in Ho Chi Minh is characterized by uncontrolled and long-term storage of waste in assigned locations or illegal landfills, traditional landfills, and the use of waste to fill up vacant areas. These practices have generated over the time, the percolation of water-soluble waste components to the groundwater, contaminating soils, groundwater, and aquifers. Moreover, waste leakages in rivers are harming aquatic life and when it is plastics is causing blockages which undermine drainage systems. Furthermore, traditional practices of incineration, based on open burning are worsening air quality at alarming levels (Verma, Borongana & Memonb, 2016). Besides, the leakage of plastic debris in rivers and oceans is harming marine ecosystems as well as human health due to the release of toxic chemicals including non-flammable compounds and Polychlorinated Biphenyls (PCBs) (UNEP, 2014). A study of Lahens et al. (2016, 2018) reveals that the Saigon River canal system, is highly contaminated with macro plastic and microplastic debris.

The high concentration of microplastics (fragments and anthropogenic fibers) in surface waters is due to the presence of textile and plastics industries in the periphery of the city and the decomposition from macro plastics and the inadequacy of the wastewater treatment municipal plants[3]. A circular economic approach to the waste management system, might be a solution to address the challenges posed by the accumulation of plastic waste on soils and waters. If at macro level, there is the need to address the production patterns and the overall WSM system through regulatory mechanisms (i.e. Extended Producers Responsibility scheme[4]), at micro level, concrete actions can be taken to address the ways collection, segregation, recycling and disposal is carried out. Starbucks Vietnam, agreed to carried out a pilot project to review its internal waste management system, with particular emphasis on plastics, and to identify solutions to curb the use of single use plastics in store. Overall, the goal was to contribute innovative solutions to address plastic waste in Vietnam. The pilot project had been co-designed and co-implemented by Rethink Plastic Vietnam and PLASTICPeople in close collaboration with Starbucks, with the active participation of a multi-disciplinary team. Starbucks' store in Thao Dien had been targeted as the first location for this pilot project. The expected outputs of this pilot project are the design of circular waste management system at store level, to be replicated in other stores, and the design and production of a prototype bin made from recycled plastics collected in the store, to be exhibited at the Innovation Street of the Seminar on "Circular Economy of Plastics" organized by Rethink Plastic Vietnam on 3rd Dec 2019.

4. DESIGN

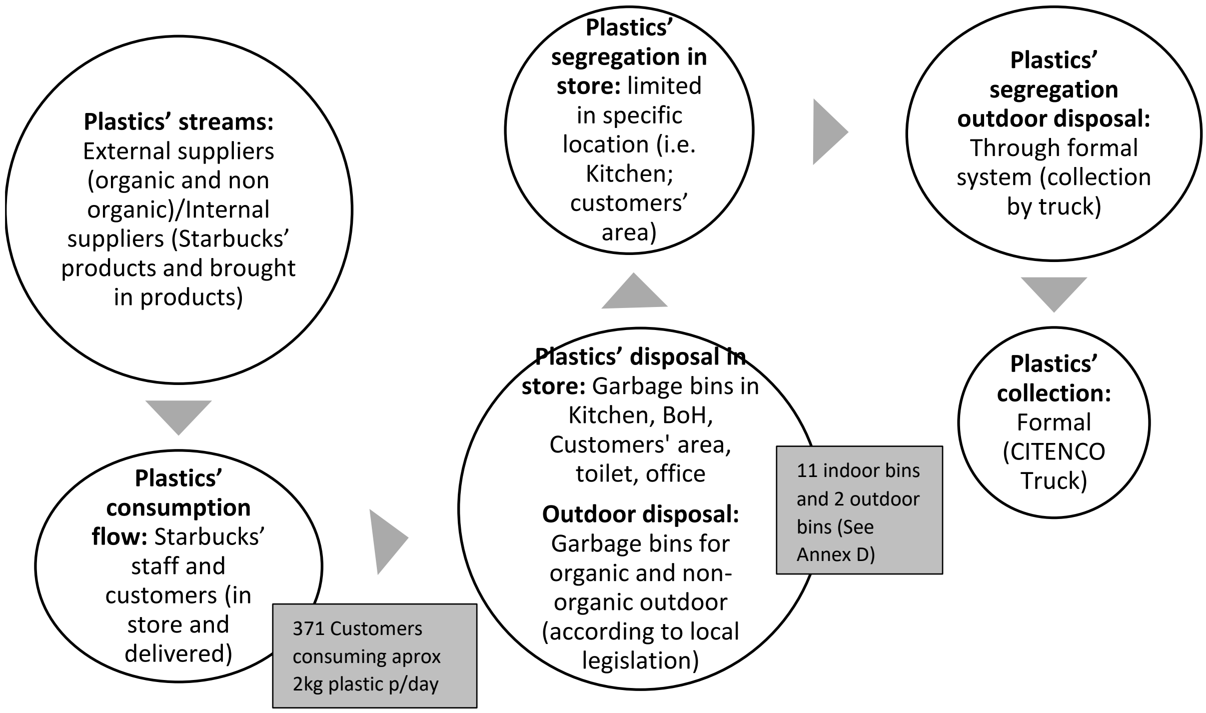
This research paper analyzes the post consumption plastic flow at the Starbucks store in Thao Dien in 2019 (pre covid situation)[5].The plastic flow of Starbucks' store, before the pilot project, can be represented as follows (Graph 2):

Graph following on the next page

[3] Of the total floating debris, 26% were plastics, of which 37% plastic bags, 14% plastic packaging (food take-out boxes, containers), and other plastics 48% (plastic bottles, food wrappings, cups, cutlery); for the polymers' classifications: 79% polyethylene (PE), 15% polypropylene (PP), 4% polyethylene terephthalate (PET) and 2% mix of PE and PP.

[4] In Renaud and Quertamp (2020).

[5] The store is located in one of the residential 'expat' areas of Ho Chi Minh, with high concentration of foreign residents, Thao Dien in District 2. It occupies 230 sqmt and has an estimate of 371 customers daily (Pre-COVID). The amount of plastics is around 2 kg per day; of which mainly 80% polymers.



Graph 2: Plastics' flow at Thao Dien Starbuck's store before the pilot project
(Source: The Author)

The store has two main plastic's streams: one external and one internal. The external is fed by suppliers who provides essential packaging products to the store, representing more than 80% of overall materials. These are mainly made of different polymers, see Table 1 below. Often all plastics items provided by the suppliers are wrapped in plastics films or plastic wrapping, which adds on the total amount of plastic waste.

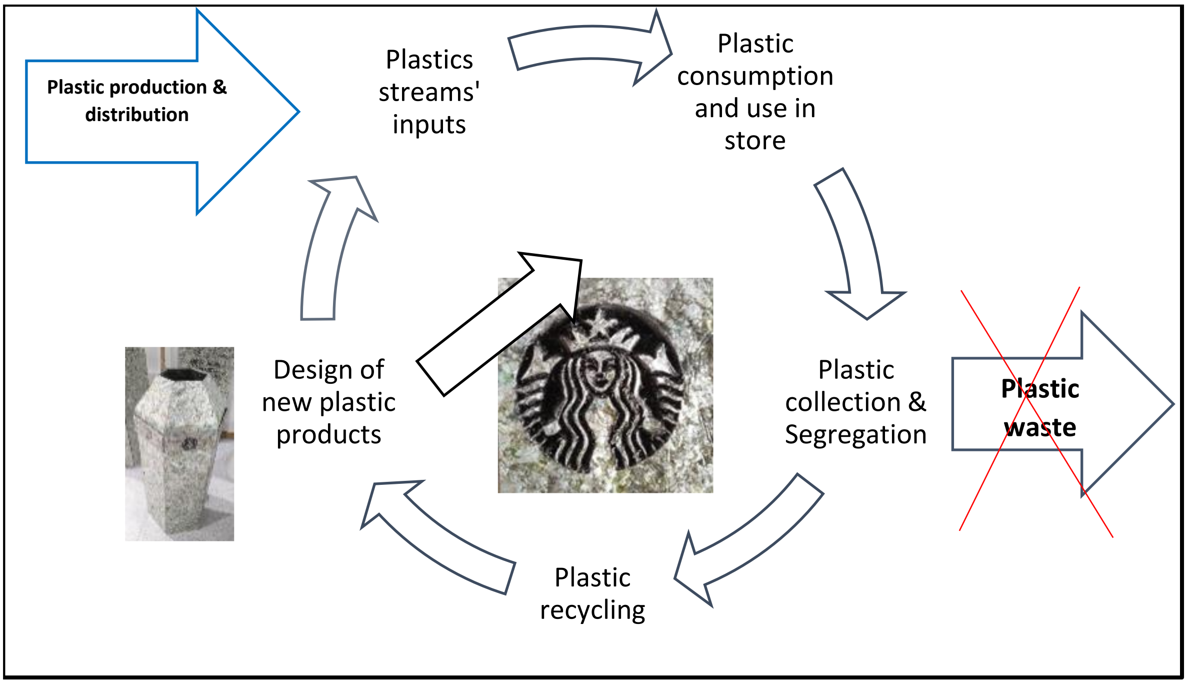
Category	Items	Plastics products	Type of polymer	# ordered p/day. p/month
Food	Coffee beans Sugar Chocolate drink mix Juice blend Tea Lemonade	Bags Bags Cartons Cartons Cartons	Multilayer(PE-PET-ALU) LDPE Tetrapak Tetrapak Tetrapak Tetrapak	106 bags/month 100 bags/month 32 bags/month 40 boxes/month 4 boxes/month 35 boxes/months
Beverage	Milk Syrups Fruit flavour sauces Flavoured sauces (i.e. Caramel) Ice	Cartons/ bottles Bottles Plastic bottles Bags/sachets Plastic bags	Tetrapak/HDPE HDPE PET PE/PET LDPE	45 bottles/day 50 bottles/month 12 boxes/month 24 sachets/month
Other items	Plastic wrapping box Cleaning products Plastic packaging materials for straws, lids, cups, cutlery Straws Lids Cups	Multiple Bags/Bottle	Multiple polymers, PVC/LDPE and Alu HDPE/LDPE LDPE/PET/PP (tapware) PP PP PET	1 box/month 60 small bags/month 120 packs/month (straw, lids, cups) 15 bags for tall, grande and venti 8 bags/week 5 packs/week

Table 1: Current flow of plastics' items entering the store
(Source: The Team)

The internal stream consists in all Starbucks' items sold in store or packaging materials brought in by customers. The main plastic products of Starbucks are beverages containers, served in different sizes, straws, lids, and cold cups. Each day, the store in average sells 80% of each item, and disposes 4kg plastics (kg/size). As per plastics generated by partners (Starbucks' store staff), it varies from day to day. All stores reported that 50% or more partners bring plastic containers from outside (lunch/dinner boxes; bottled beverages; etc.) as well as plastic bags, however the plastic type and levels are not easily measured. A rough estimate could be around 240 containers per month / per store of different size and typology of plastic packaging for food and drinks. Customers too, tend to bring in plastic items that they then dispose in the garbage bins of the store. These are mainly food packaging, cutlery, water bottles, straws and plastic bags. The frequency of use depends on customers' demand. However, the amount of plastic packaging, i.e. containing lids, might not be disposed daily as customers might not require lids as they also use mugs, tumblers and other plastic free alternatives. Once used by the partners and the customers, all plastics' products are disposed in several bins inside the store (see bins' location in Annex A). Indoor plastics' segregation occurs mainly in the kitchen area, for instance for milk and other liquid's containers and in the bar's area, under the sink. The bins in the customers' areas (indoor and outdoor) do not separate plastics from other items (i.e. paper, cardboard, cans, etc.). The Outdoor Municipal bins are for organic and non-organic waste. An informal picker comes in the evening to collect only cardboards. A truck of CITENCO[6] arrives every day to collect both organic and non-organic waste, after closing hours, around 9, 9:30pm. The above information helped to better understand the dynamic and volume of plastics' flow in store, so to identify better strategies to enhance the recycling rate of most of the plastics in use. As it is difficult to have a full control of all supply chain, the team agreed to limit the analysis to the store's waste management system from the delivery of supplies at store, to the plastics' management and final disposal. At the beginning of the pilot project, no recycling activities of plastics' waste were implemented; thus, the objectives of the team were to design a new system of store's waste management that could supply the quality and quantity of plastics required to make a bin of recycled plastics or other similar products, with the ambition to achieve a zero plastic waste goal. The below graph 3 shows a preliminary design of the implementation of a circular economy system at store's level, obtained through brainstorming sessions (see also preliminary design sketches of the bin in Annex A):

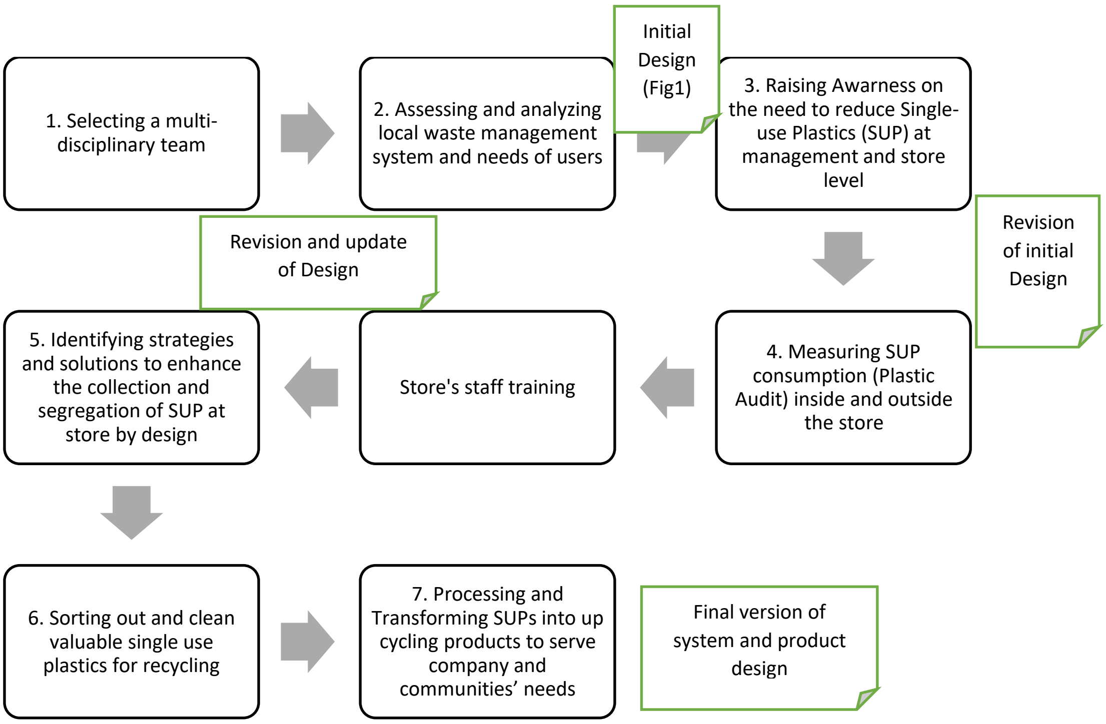
Graph following on the next page

[6] CITENCO - Company Limited Urban Environment City (CITENCO) is a public utility enterprises directly under the People`s Committee of Ho Chi Minh City in charge of solid waste management.



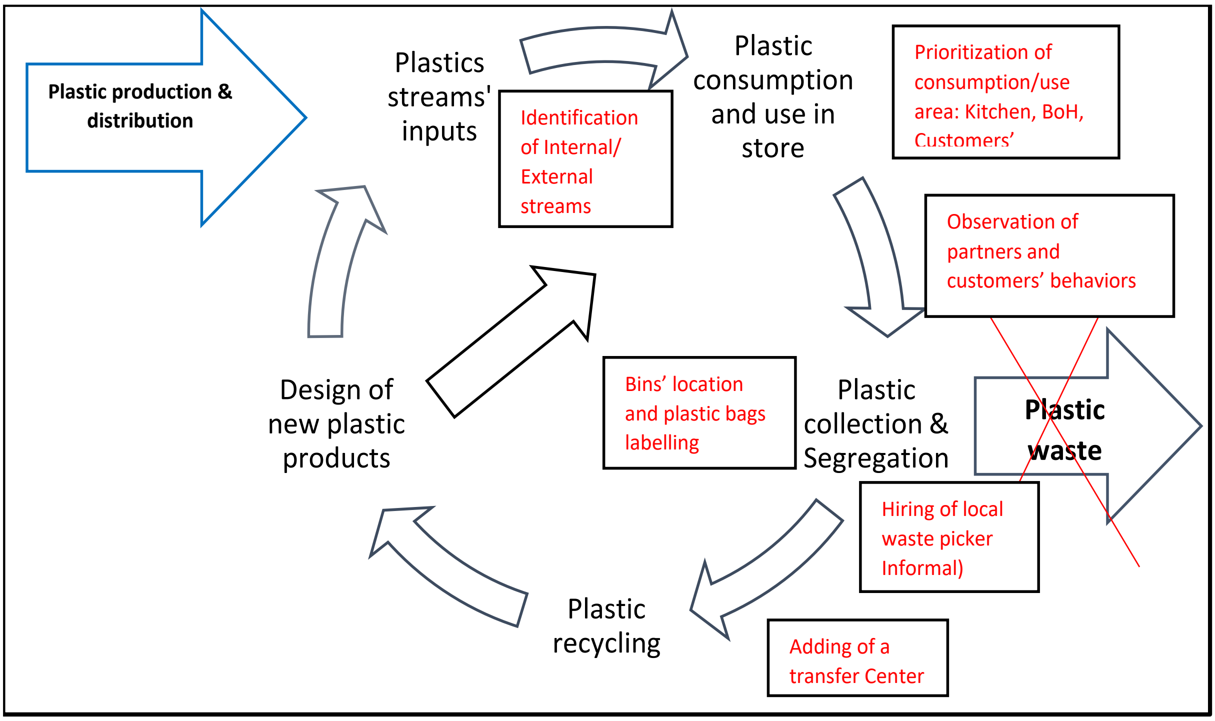
Graph 3: Preliminary design of a circular economy system at store level
(Source: The Author)

The application of the design methodology was successful done by following the steps show in graph 4 below:



Graph 4: Road map of design methodological steps
(Source: The Author (2019))

The first step was to form a multi-disciplinary team who could contribute to the design and practical implementation of the pilot project. Starbucks offered the availability of the area's coordinator, the baristas, and store's staff; Rethink Plastic Vietnam, brought in a Sustainability expert and a biological engineer; while PLASTICPeople, 2 recycling experts and an assistant[7]. The project set up retroactive feedback's mechanisms at all different steps to facilitate the contributions of all other stakeholders including top managers of Starbucks Vietnam (CEO and Marketing Director), customers and waste pickers. This approach enabled continuous revision and update of the initial system's design thanks to the contribution of all stakeholders involved in the process. To enable the successful implementation of the plan, it was crucial to begin with systematizing all information and knowledge on the local waste management system. A series of 3 brainstorming sessions were organized with the project team to share and use the collected knowledge to review the initial design of the system at store level and the execution plan. During this process, the team identified the needs of all primary stakeholders involved with the waste management's system of the store by organizing at least 10 meetings with Starbucks top managers, stores' staff, and local pickers. Once the team got a green light from Starbucks, the second step was to debrief all store's staff, in total 7, each implementation day, on the project's scope and identifying the main internal plastics' streams. This helped to engage the staff and define a strategy to improve the collection and preliminary segregation of plastics inside the store. Preliminary observations of waste practices and habits of store's staff and customers, helped in gaining a better understanding of the potential challenges in implementing the plan. This ultimately led the team to make critical choice in terms of prioritization of waste plastics' sources at store, typology of plastics and approximate quantity, time schedule to interact with staff and customers, collection, and segregation's approaches indoor and outdoor, logistics for waste pickers. Finally, to revise and update the system's design as shown in Graph 5.

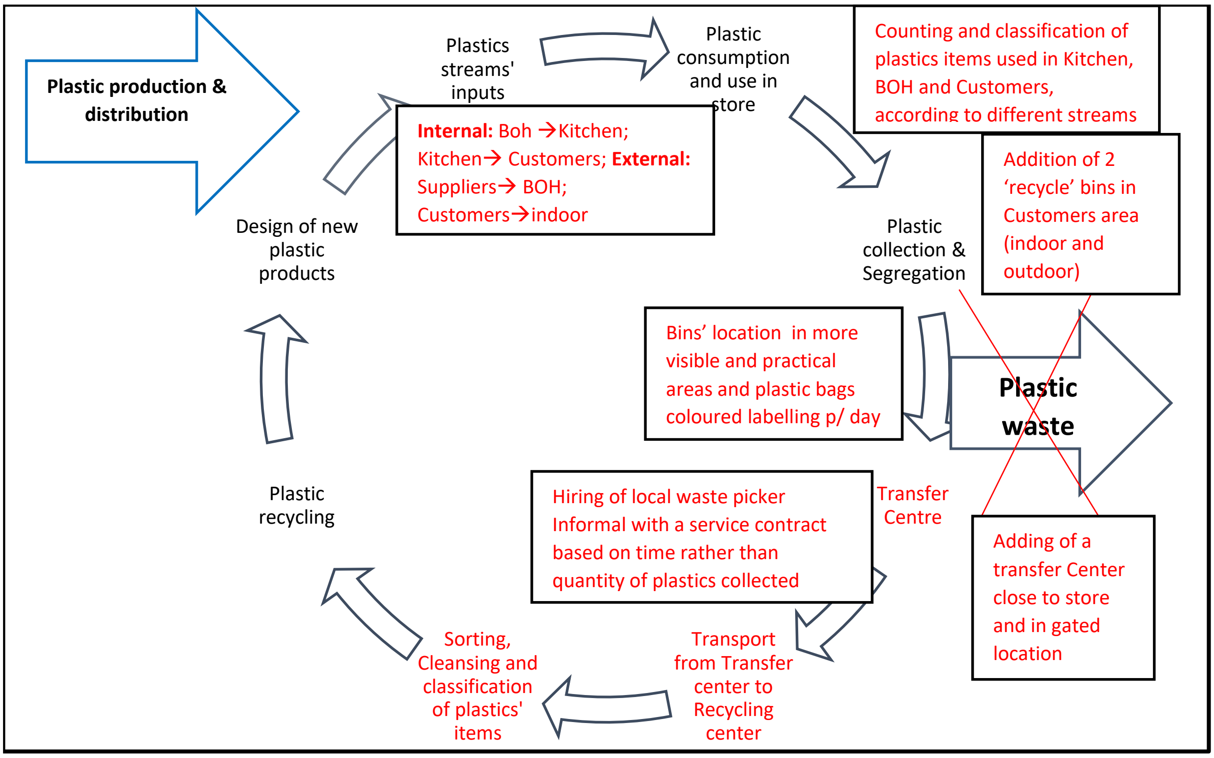


Graph 5: First update of design of a circular economy system at store level (Source: The Team)

The following step was to train the staff on a preliminary plan of action.

[7] Rethink Plastic Vietnam is a community-led initiative which focuses on raising awareness on Plastics and its impacts on society. Main activities are knowledge sharing through international seminars, workshops, and lecturers; networking; advocacy campaigns at corporate and community level (www.rethinkplasticvietnam.com). PLASTICPeople is a social enterprise which designs circular solutions to address plastic waste pollution, through mechanical recycling (www.plasticpeople.vn)

The training targeted 10 staff and focused on raising awareness on plastics' negative impacts; on plastics' typology, composition, and usability; Operational protocol for collection, segregation at store level; Logistical scheme for the week; Follow up on the process of the project, pickers and selection and segregation at the center; Plastic waste sorting, collection and delivery in transfer location by local picker. The plan was accepted and ready for execution (see Graph 3). The execution of the plan consisted in classifying plastic waste collected in store, with different coloured labels, each of them defining the indoor plastics' source: Kitchen (Red); Back of Office-BoH (Green) and Customers' area (Yellow). The approach of having different tags at different locations, was driven by the staff's need to simplify and ease the process of sorting applied by the staff, especially when the store would get crowded. Extra bins were added in the customer area, with a tag and arrow, to sensitize customers to recycle plastics. A formal picker was contracted to help in collecting and sorting out plastic items from the outdoor garbage bins and transport them in a transfer station. The selection of an informal picker was essential to implement the plan, as by law, the municipality trucks only pick up organic or non-organic waste from outdoor bins. The picker was trained for 3 consecutive days to differentiate the different typology of plastics and sort them out from the 'non-organic' bin and allocate it in bags, labelled by different colours per day. After she completed her daily collection and segregation task, she brought the bags in a transfer area closed by the store, where she accumulated the bags of the entire week, till she delivered it to local transporter to the recycling center of PLASTICPeople. To validate the project's implementation and design of the new circular system, at least 3 at random monitoring visits per day were carried out by different team's member at different times of the day. The techniques applied were observations and unstructured interviews, mostly informal chats, with the staff and customers. Each new input and feedback would be shared with the rest of the team and used to update the plan and the design of the system. Graph 6 below shows the updated version of the system, after the entire pilot project phase of plastic's waste collection and segregation at store was completed:



Graph 6: Second update of design of a circular economy system at store level (Source: The Team)

Once all plastics were brought at the recycling facility, it was duly inspected. Here the team spent at least 2 days in weighing, cleaning, segregating, identifying and sorting out plastics and placing them into appropriate bins to be reprocessed. The team was now ready to make the bin according to the design sketches approved by Starbucks (See Annex B). Before processing, all plastics were carefully cleaned and removed of all impurity and contaminants. Plastics were found highly contaminated (mostly mixed with liquids and food leftovers) due to the lacking of preliminary cleaning at the Starbucks store. Then carefully shreded and combined before being melted and shaped into panels to produce the prototype bin. For the prototype bin was required a total amount of 14.5 kg of poly-alu from milk boxes, straws and films (previous processed plastic waste were used to get enough material to build the bin). Finally, for the dissemination of the results achieved by the pilot project, it was agreed by all stakeholders to exhibit the prototype bin with explanation of the store's circular economy system at the innovation street of the business seminar organized by Rethink Plastic Vietnam on “The circular Economy of plastics” (Rethink Plastic Vietnam, 2019).

5. VALIDATION

During the implementation of the project, the design process was supported by continuous assessments by the team and feedbacks’ provision of all stakeholders involved; all solutions (research results) were shared with them for validation and further improvement. In total an amount of 23.3 Kg of plastic items in 14 bags were collected from Tuesday 19th November till Sunday 24th November 2019 in the Starbucks' Thao Dien store. For each different polymer, the following quantity of plastics items were collected during the overall period of the project, see in table 2 below:

PET	HDPE	LDPE	PP	PS	TETRA-PAK
400	65	290	270	97	74

Table 2: Quantity of plastics according polymer's category
(Source: The Team)

The identification of plastic's sources is important as it helps to better understand where plastic waste is generated from and in which amount. In addition, the typology of plastic's recycling is key to assess if and what types of plastics can be recycled, taking into account local recycling facilities and how to better segregate it. In this project, it was agreed to use the recycling facility of PLASTICPeole, as it guarantees 100% recyling of all types of polymers. While it is quite easy to identify the internal sources of waste streams and the external suppliers' streams for the kitchen and BoH areas, for the customers' areas, it is quite difficult to distinguish between those plastics brought in by them (especially when not distinguished by specific logos/labelling) and those bought and got in the store. It looks like there is not much plastic from outside and mostly those that are potentially brought in by the customers are bottles (PET), straws (PP) and cutlery (PP) (see Table 3 below).

	Kitchen	BoH	Customers	
PET	184	155	61	400
HDPE	13	52		65
LDPE	290			290
PP	208	39	23	270
PS	52	45		97
Tetrapak				74
Unknown	1	7	1	9

Table 3: Polymers' category according to source
(Source: The Team)

The highest quantity of plastics' items are PET (400), LDPE (290) and PP (270). Among PET: Bottles (45), Cups (190), Lids of Cups (128) and Containers (37). LDPE: plastic bags (290). And for PP: Straws (170), Containers (5), Lid of bottles (21), cups' lids (74). With the introduction of the segregation process on Thursday, with the allocation of bags labelled with different colours in different position of the store, more plastics items have been identified and categorized according to the source as shown in table 4:

Date	**Area**	**Number of bags**	**Weight (kg)**	**Internal Source**	**External source**
Tue,19/11	Kitchen	2	3.5		
	Customers				
	BOH				
Wed,20/11	Kitchen	2	6.8		
	Customers				
	BOH				
Thu,21/11	Kitchen	1	1	1	
	Customers	1	0.3	0.3	
	BOH	0	0		0
Fri,22/11	Kitchen	1	1.7	1.7	
	Customers	0	0	0	
	BOH	1	2.5		2.5
Sat,23/11	Kitchen	1	0.5	0.5	
	Customers	1	1.4	1.4	
	BOH	1	1.5		1.5
Sun,24/11	Kitchen	1	1.5	1.5	
	Customers	1	1.1	1.1	
	BOH	1	1.5		1.5
Total		14	23.3	7.5	5.5

Table 4: Volume (kg) of plastic items collected by day
(Source: The Team)

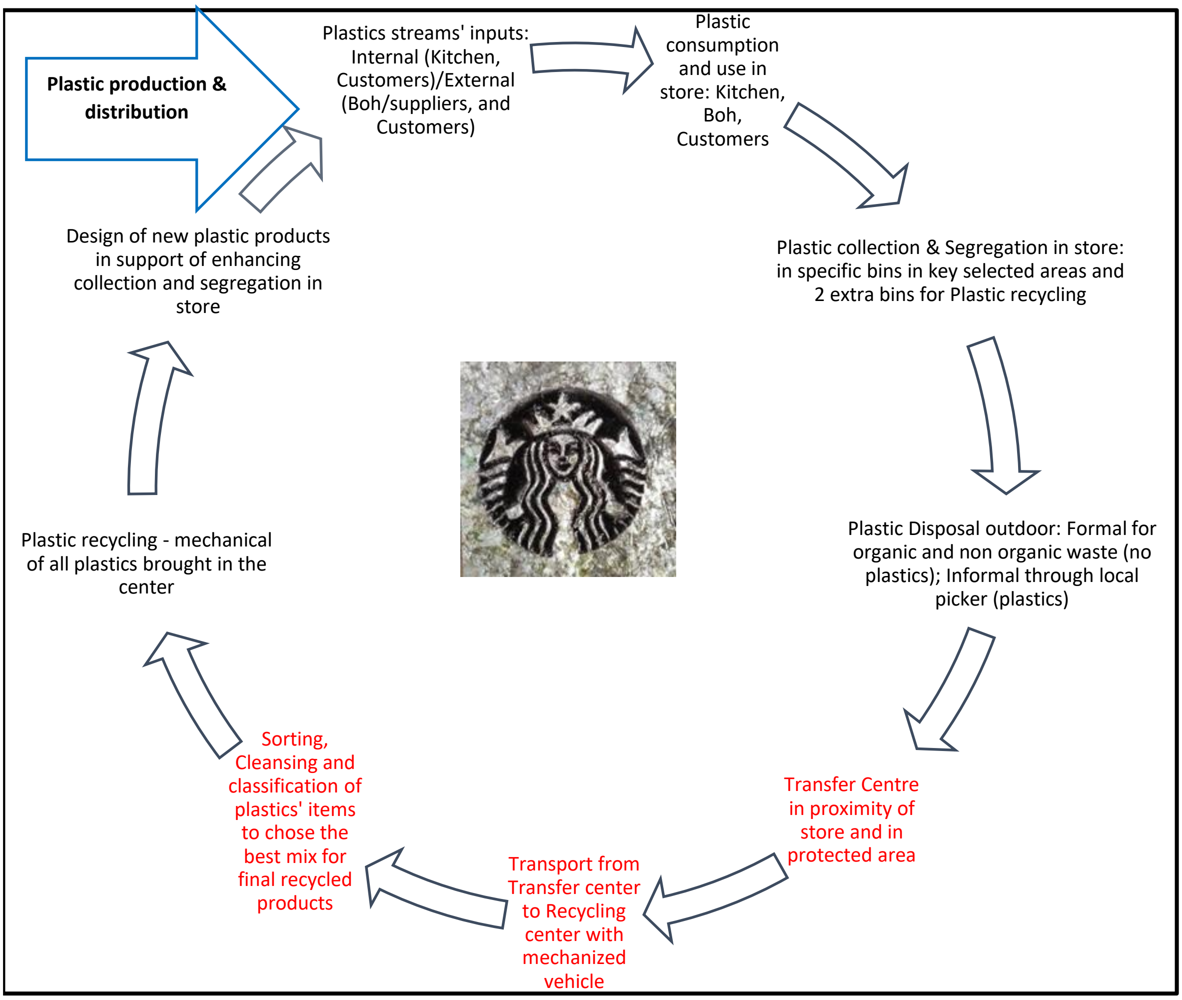
Despite an improved sorting system in the kitchen and BoH, the plastic items which are disposed, are not rinsed or cleaned after use. This practice proved to undermine the recycling process as after few days, some of the plastics became unusable for processing due to the high concentration of bacterial contaminants and the difficulty of rinsing it out. In the customers' areas (indoor and outdoor), the team agreed to introduce 2 extra bins with a 'recycle' logo the third day of the project, on Friday evening. This suggestion came from the baristas and validated by our observations, as customers' habits led to throw all used items, no matter the composition, in the only available bins, with no separation. The addition of two extra bins with the green recycle logo, triggered customers to reflect before throwing what they have onhand and eventually dispose plastic items in the appropriate bin. In fact, data shows in Table 5, that since the extra bins were set up a wider typology and quantity of plastic items were collected in the customers' area:

Table following on the next page

Day	*Product type*	*Plastic type*	*Area*	*Source*	*# items*
Tue 19/11	Container	?	Customer	Internal	1
19/11	Lid	PP	Customer	Internal	11
					12
Wed 20/11	0	0	0	0	0
					0
Thu 21/11	Lid	?	Customer	Internal	3
21/11	Straw	PP	Customer	Internal	9
					12
Fri 22/11	0	0	0	0	0
					0
Sat 23/11	Bottle	PET	C	Internal	3
23/11	Cup	PET	C	Internal	55
23/11	?	?	C	C/External	1
					59
Sun 24/11	Bottle	PET	C	Internal	3
24/11	Bottle	?	C	C/external	2
24/11	Lid	PP	C	Internal	3
					8

Table 5: Customers' plastic habits during pilot project
(Source: The team)

It is worthy to notice that when the customers bins are empty, it is because customers are bringing their own reusable bottles or cups. The high frequency of items on Saturday might be justified by the amount of additional customers, including children, and local residents, whose recycling habits are still quite poor. Once the plastics is thrown in the outdoor bins, a local picker arrives at around 8pm to sort out the waste and pick the plastic which is cleaner and more intact. The rest is left to the CITENCO trucks that normally come to collect the waste at around 9 - 10pm (after closure of the store's customers' services). In practice, local informal pickers 'buy' selected waste items that have a high value in the recycling market. Among these are cardboard, aluminium cans, PET bottles and rarely glass. The price per kg varies according to the market. As the project aimed at increasing the amount of plastics collected, to be recycled, a new financial scheme was applied where the project hired the local picker as team's assistant, and paid her compensation for services based on the total amount of hours rather than the weigh of collected items. In this way, the team was able to get a local lady who dilingently carried out all the delegated tasks. At the end of the 6th day, all plastic bags containing plastics items per day, were transported to the recycling plant. In total an amount of 23.3 Kg of plastic items in 14 bags were collected. The bin was produced from 14.5 kg of plastic. All the items which were not used to make the bin, were processed to make other products: 100% of recollected plastics that is brought at the recycling facility of PLASTICPeople is mixed with other plasitcs and fully processed to make other plastic products. The process of recycling, consists firstly in separating plastic and aluminium from paper (especially in the case of Tetrapak), to enable a safe melting of the materials; then in mixing, heating, melting and pressing the plastic mix to produce sheets. Finally in mechanically cutting the sheets to shape them accordingly to the design and ensembling them using traditional techniques without the use of additives. At the end, as shown in Graph 7, the design of the circular economy system was changed as follows:



Graph 7: Final update of design of a circular economy system at store level
(Source: The Author)

6. REFLECTIONS

The aim of this research was to adopt the design methodology to design and implement a local plastic waste management system in one Starbucks' store, applying circular economy principles. After the completion of the pilot project, the team with other primary stakeholders, met to review the process, share lessons learnt and report on the findings and recommendation to Starbucks[8]. Hence, reflections and recommendations can be drawn on both the methodological approach and on the effectiveness of the implementation of a circular waste management system.

6.1. Reflections and recommendations on the design methodology

The design methodology applied in this research used an abductive approach, as it focused on explaining a 'real world' phenomenon (plastic waste management) and problem (plastic pollution) through observations and prior knowledge to build a theory. The participation of a multi-disciplinary team, sharing and reviewing experiences, comparing knowledge from different perspective, helped in gaining a in depth understanding and interpretation of the phenomenon under study, thus, enabling the design of new systems and products that could address the problem with pragmatic solutions. The choice of a multidisciplinary team is crucial to enable the successful implementation of the methodology and project.

[8] The project's report has not been published.

In this research, the team could have been enriched by a product design and marketing expert to explore further possibilities of designing plastic product apt for the secondary recycling market. To identify the needs of the end-users, the project focused on store’s staff and waste pickers, while it could easily have extended the analysis to customers and suppliers, to have a more comprehensive understanding of the supply chain. Besides observation techniques, online surveys and more structured interviews could have enhanced the collection of qualitative data. As the project aimed at designing a new plastic waste management system and bin’s prototype, to embed circular economy principles, co-designing process should be strengthened with the participation of all stakeholders involved in the project and along the supply chain, to find solutions which could meet the needs and preferences of all end users. Due to time and contingency’s constraints, the pilot project missed out crucial external stakeholders: local government officers, official waste collector, suppliers, customers and competitors. An improved system of monitoring, revision and feedbacks’ provision mechanisms with wider participation of stakeholders, could have enhance the effective implementation of proposed solutions on a larger scale. Finally, ensuring the scalability and replicability of the project, is a crucial step in validating the effectiveness of the achieved results and in assessing the impacts of the designed system and products on plastic waste’s reduction. The recycled plastic bin was exhibited in an international business seminar to showcase the results of a circular process. The approach was welcomed and later applied by other companies. Unfortunately due to COVID and the disegragation of the team, it was not possible to extend the pilot project to other Starbucks' stores and implement it at bigger scale. As per Rethink Plastic Vietnam, the project has been the inspiration of the Design Factory, an initiave implemented in 2020 with the aim to deliver business ideas and design solutions applying circular economy approaches, by the participation of University students in HCMC. PLASTICPeople endorsed the approach and developed a complete programme based on the findings and lessons learnt of this project. Overall, the choice of a design methodology to analyse a business case study, it is an innovative approach that adds on creativity and pragmatism to the analysis, as it helps in keeping focus on the need to address real problems with practical solutions, by adopting a pragmatic perspective, thus adding the anthropological and ethnographic elements to business disciplines.. It provides the flexibility of adjusting preliminary results thanks to stakeholders’ feedbacks as it integrates cross-validation mechanisms through the overall methodological process which futher enhances the reliability of the findings. The application of design research also addresses researcher's bias in interpreteting a phenomenon. In this case, as the research is built on the data collected by a multidisicplinary team with different background, and validated by several informants, the level of biasness is reduced to minimum levels. Obvsiuly this also depend on the composition of the team, their professional and educational background. The value of this approach relies on the pre-knowledge and observation of the researcher who, though, takes as a reference a construct, in this case the circular economy framework, which is then tested, deductively and inductively, against an hypothesis or proposition based on multiple observations. This process leads to the building of a new knowledge based on the validation of the explanation of the initial proposition. Moreover its ability to create and trigger new ideas thus finding potential multiple explanations and solutions to the phenomenon investigated, helps in overcoming some of the challenges of a deductive and inductive research. In fact as deductive research doesn't necessarily generate new knowledge as it supports the scientific certaninty of its findings, inductive is rich in generating knowledge but lacks the productivity of an abductive research, in terms of solutions and findings. The integration of the three approaches of inference, abductive, deductive and inductive, as suggested by Peirce, adds credibility of the findings and finds extended replicability in other disciplines (Awuzie & Mcdermott, 2017).

6.2. Reflections on the implementation of the pilot project

The successful implementation of a circular waste management system is possible if all the supply chain is considered, from production of plastics' products entering the store, to final disposal, to enable the full reuse and recycling of all plastics entering the supply chain, thus drastically reduce plastic waste. Three main areas of improvement have been identified:

- *Reduction of unnecessary single use plastics along the supply chain and at store's level.* From the supply chain perspective, once the amount and typology of in store plastics have been classified, the external plastic streams, from suppliers to store and from customers to store, should be reviewed and aligned with plastic consumption and use' reduction and/or recycling strategies. All plastic items in store should be analyzed according to their capacity of reusability and recyclability, also in view of the available recycling capacity of the local facilities. Intensive campaigns of awareness raising should be carried out to sensitize customers and partners on the negative impacts of plastic waste, thus encouraging them to curb the consumption of single use plastics in favour of alternative long term plastic use (i.e. reusable bottle, cups and non-plastic straws). The company's management should also apply radical decisions in terms of eliminating the most used single use plastic items, such as straw, lids, cups, bags and replacing them with alternative reusable and/or recyclable creative products. Also, specific selection criteria of suppliers should be applied, to align internal strategies of plastic use reduction, while encouraging suppliers to reviewing their packaging practices and investing in more suitable design of plastic products for recycling. At store's level, bins can be redesigned with separation compartments, to incentivize better segregation and promoting rinsing and cleansing practices.
- *Enhancement of collection, sorting and cleansing of plastic waste.* Once the practical protocol for store's staff on the collection and segregation of plastic waste in store, is officially applied, a reallocation and redesign of bins is required. Indoor, Bins should be allocated in critical locations (i.e. in the kitchen under the coffee machine) that would enhance the mobility of staff and their segregation's practices. At the same time bins should be redesigned in a way that would integrate materials' separation compartments and would encourage, with special labelling, the disposal of rinsed and cleaned plastic items. Barcodes could be applied to each bin, to explain the plastic waste flow and raise awareness on plastic's pollution. Outdoor, Starbucks could add specific bins for plastic items outside besides the organic and non-organic bins (a further segregation could be done among plastics according to their recycling properties). The collection of plastic waste from these bins should be managed by local pickers, who should be hired as official recycling partners, and compensated based on service rather than quantity of collected plastic items; this would trigger the collection of plastic waste independently from their price in the secondary market. At the end of each day, all plastic waste should be transfer to a defined local warehouse. This warehouse should be rented out by the company and become part of the plastic waste logistic scheme. At the warehouse, plastic waste would be accumulated, accounted and segregated according to different recycling typology, colour and composition, then transported to the recycling center. To reduce current costs, the warehouse should be a central point for all plastic waste generated by Starbucks's stores in Ho Chi Minh City. Once the plastics reach the recycling center, all the plastics can be fully processed and converted in upcycled products. Starbucks could co-design with recycling engineers, a set of new products to place in stores, to further promote their circular economy strategies and align segregation practice at store with the different typology of polymers for recycling. Examples of products are furniture (tables, chairs, benches, bins, shelves), flooring, but also objects such as trays, coasters, boxes.

- *Rewarding good practices and behaviours*
  Any change process to be successful needs to be explained and accepted by the people involved. Rewarding for best behaviours and practices is a proven strategy to further engage people to change in the long term. Nominating and awarding staff as 'Green Ambassadors' of Starbucks might further enhance their commitment to address plastic pollution at store and at company and community level. Customers who prefer to use their reusable products and refuse to use single use plastics, could also be awarded with symbolic gratifications and social media coverage. At corporate level, applying strict criteria in selecting 'green' suppliers, would also trigger the distributors to look for alternative packaging materials thus generating a new demand for recycling and/or alternative materials to plastics. They could also be mentioned and rewarded in public events, to inspire others to follow. Finally, Starbucks in Vietnam should expand the project to all its stores and promote a new circular economy waste management system, engaging all other stakeholders in the supply chain, as shown in Graph 4.

7. CONCLUSIONS

This research applied a design methodology to explore how the co-design of a circular plastic waste management system could contribute to curb plastic waste at store level. The design methodology applied to a business case study, helped to find practical solutions to solve a real problem in consultation with all stakeholders involved in the project, in a specific setting and timespan. Such approach ensures the validation of results as they are backed up by complex and continuous retroactive feedbacks' provision mechanisms during all project life. Moreover, the chosen methodology enabled to gain a much deeper understanding of the phenomenon under study with the contributions of multiple stakeholders and to redesign the local management system in view of enhancing the recycling of all plastic waste generated in one store thus reducing if not eliminating plastic pollution. This research limited its scope to one store and its internal management system due to time and resources' constraints; however, the applied methodology enables the replicability and reliability of the solutions. Nevertheless, to fully understand and analyse the successful application of a circular economy model, the project should be extended to all supply chain from production, through the choice of polymers to the design of products, to suppliers, selecting them on their practice of using plastic free packaging, to Starbucks, in view of developing circular economy strategies, to the end consumers, sensitizing them on the need to revisit their plastic consumption' habits. Overall, this research proves that a circular economy model is effective in addressing the problem, if a series of improvements are applied to the current system: diligent assessment of plastics (plastic audit); improved segregations practices; integration of recycling streams at post consumption level and finally massive campaigns to raise awareness about single use plastics' pollution to all relevant stakeholders along the supply chain.

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APPENDIX

Annex A: Design of bin's prototype by PlasticPeople

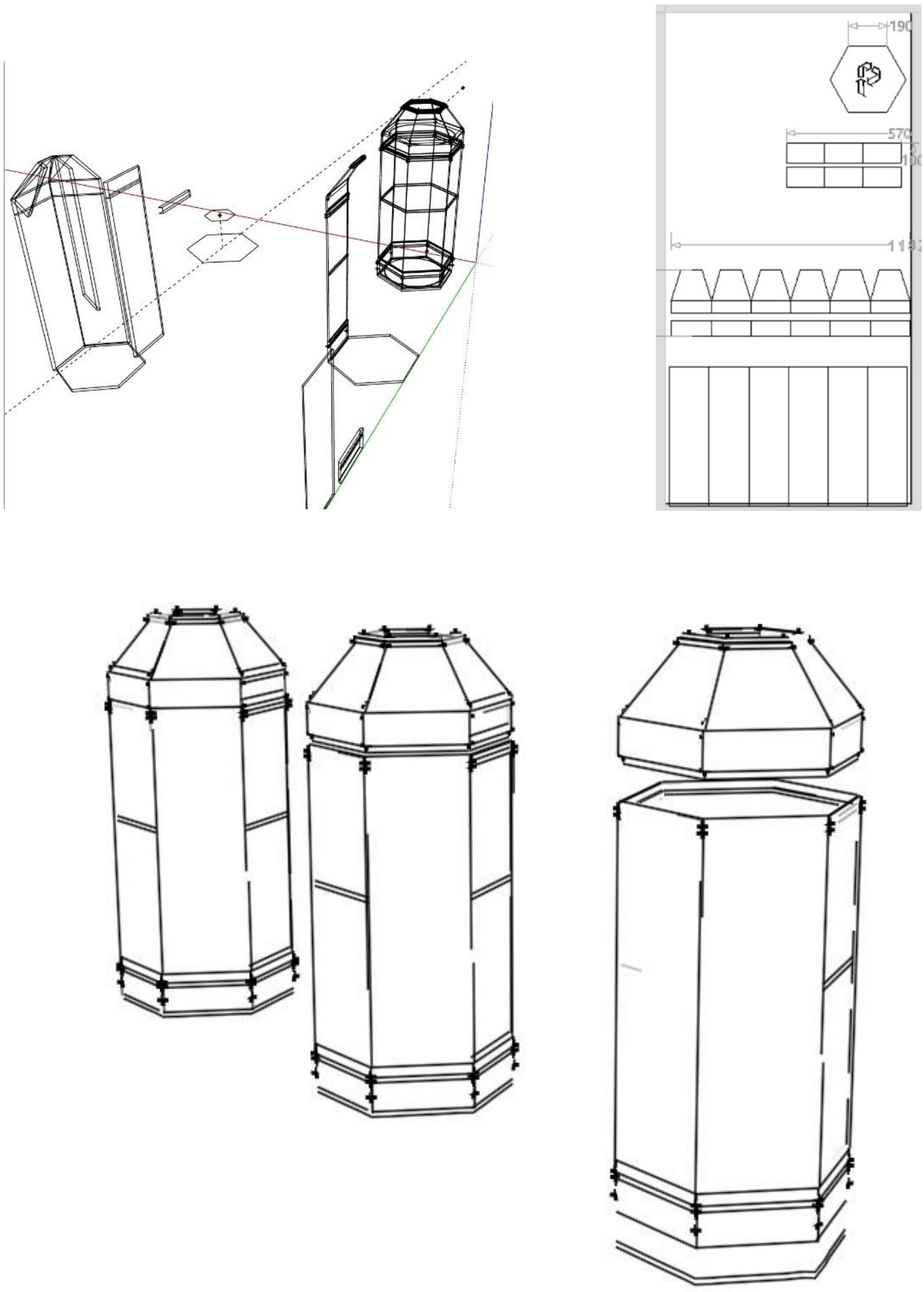

Figure 1: Design of bin's prototype by PlasticPeopl
(Source: PLASTICPeople (www.PLASTICPeople.vn))

Annex B: Bins' location in store

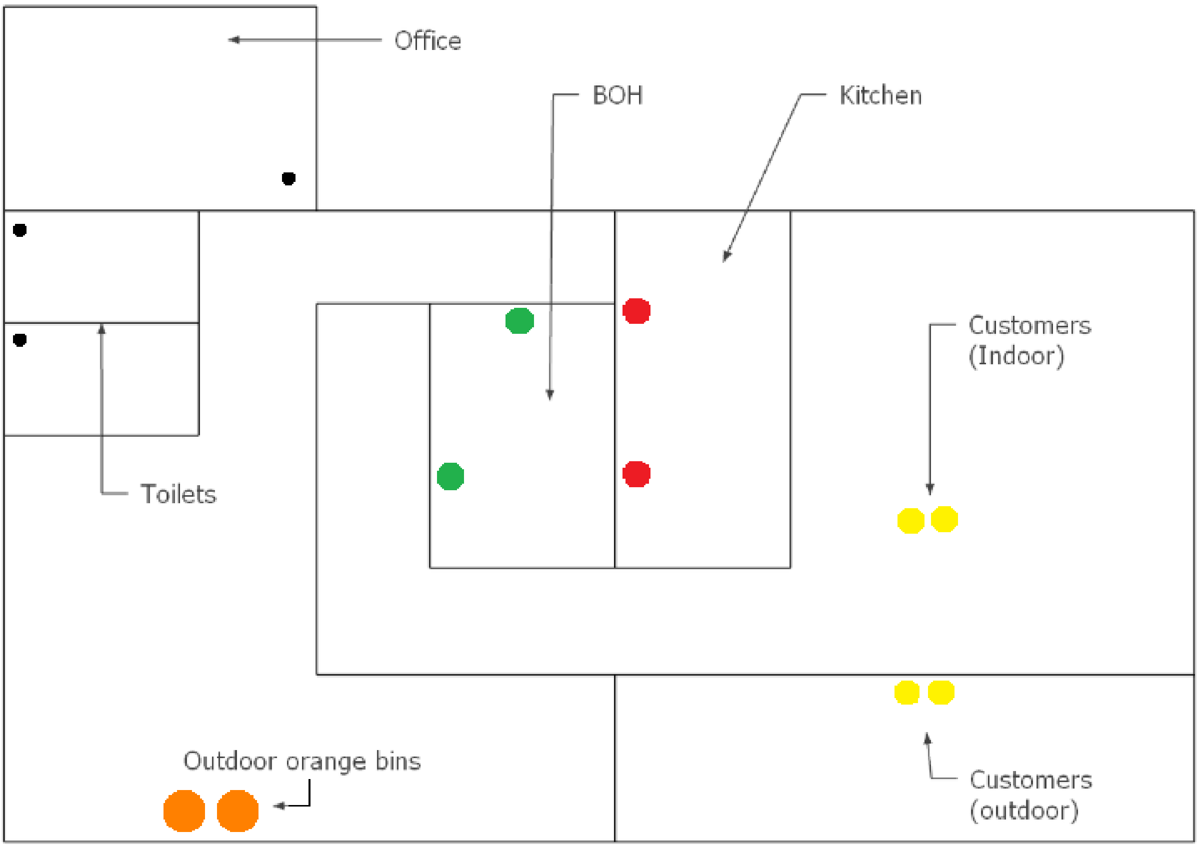

Figure 2: Bins' location in store
(Source: PLASTICPeople)

PRESENT AND FUTURE OF LIFESTYLE MEDIA IN MODERN SUSTAINABLE SOCIETY

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ABSTRACT

The long-term sustainability of a community and set of social institutions or social practice are one of the most important topics of modern society. How to successfully create a sustainable society becomes the responsibility of all parts of the community, including the media, whose social responsibility is indisputable. The concept of sustainable journalism is based on one of the most important UN reports „Our Common Future" inspired by the Stockholm Conference in 1972 that introduced environmental concerns to the formal political development sphere. Accordingly, the future of the media depends on how quickly and efficiently it would adapt to new trends, especially when it comes to issues of sustainability. Exactly because of that, the task of all media organizations is, in accordance with journalistic ethics and social responsibility, to adapt their operations to contemporary social trends. This paper covers the area of lifestyle media with the aim of analysing their social responsibility in creating a sustainable future. The main goal of the research is to examine the attitudes and opinions of readers of lifestyle media in the Republic of Croatia about present and future of lifestyle journalism, with a special focus on the expected effect of including topics about sustainable development of society on the reading interest of media users (the so-called general media audience), readers and non-readers of lifestyle media, as well as on the general experience of lifestyle media. The research was conducted using a qualitative methodology, the focus group method, and is focused on the present and future of lifestyle media in the Republic of Croatia in modern sustainable society.

Keywords: *journalism, lifestyle media, modern society, sustainable, social responsibility*

1. INTRODUCTION

Sustainable development as a process of social progress that adapts to the needs of present and future generations and that successfully integrates economic, social and environmental issues in decision-making is one of the primary goals of the modern society, on which the prosperity of the society as a whole depends. Changes affect all parts of the society, including the media, whose future, as well as the present, depends on how successfully and efficiently it adapts to the changes required by sustainable development. According to Malović (2005: 91), the role of journalists in corporate social responsibility is very important, because no matter how hard corporations try to be fighters for environmental protection, driven by the concern for quality life, they cannot do without the media.

„The secret connection that exists between corporate social responsibility and the media is wider than a simplified comparison with advertising. Corporate social responsibility is deeply rooted in journalism. Journalists produce media products that – except for some public media – are confirmed on the market. However, journalists have never accepted the trap of being mere producers, as news production is something more than shoes production." (Malović: 2005: 91) Consequently, but also despite the fact that the media must survive on the market, and thus their finances are extremely important, scientists (McQuail 2005: 170) in their research point out that the economic factor should by no means be the only, and especially not the key, goal of their existence, and that one of the extremely important roles of the media is their social responsibility. The theory of social responsibility of the media is a normative theory and it therefore sets certain standards that journalists, and consequently the media, should adhere to in order to function in accordance with some ideal social values and principles (McQuail 2005: 170). Furthermore, in the UNESCO declaration „International Principles of Professional Ethics in Journalism", adopted in Paris in 1983, it is pointed out that „information in journalism is understood as a social good and not as a commodity, which means that the journalist shares responsibility for the information transmitted and is thus accountable not only to those controlling the media but ultimately to the public at large, including various social interests. The journalist's social responsibility requires that he or she will act under all circumstances in conformity with a personal ethical consciousness." (Malović 2005: 93). The concept of sustainable journalism is based on one of the most important UN reports, „Our Common Future"[1], inspired by the Stockholm Conference in 1972, which introduced care for the environment into the formal sphere of political development. The United Nations emphasize the need to support multidimensional communication systems to incite dialogue and enable communities to express their views, aspirations, as well as concerns and to participate in making decisions about the development of these communities. In 2009, UNESCO issued the publication „Media as partners in education for sustainable development"[2], in which it emphasizes the role of the media in communicating topics about sustainable development and offers journalists information on the main issues of sustainable development and directs them to research this topic. This is particularly important in the context of the UN 2030 Agenda for Sustainable Development, which defines 17 sustainable development goals and their sub-goals, signed by all Member States. The program was supported by world publishers, thus, for example, the Professional Publishers Association (PPA), based in UK, warns about the challenges of sustainability in modern society. Accordingly, the subject of this paper is the present and future of lifestyle journalism in modern sustainable society, namely because that kind of journalism has been considered less valuable for years due to the fact that it is mostly focused on financial gain. Most researchers and scientists, if at all engaged in this type of journalism, emphasize its strong connection with advertising and public relations, and often „accuse" lifestyle journalists of adapting the content they publish to the needs of advertisers. In addition, the biggest changes throughout the history of the magazine industry have occurred as a result of the continuous battle for survival – that is, for advertisers and readers. In addition to all that, digital media have brought a challenge and a threat on the one hand, but also an opportunity on the other hand. It is obvious that the magazine industry is facing major challenges and it will have to change again and adapt to the media trends of the 21st century, which will greatly affect the content we are used to getting from magazines and the ways in which we get that content. According to Zgrabljić Rotar (2011: 29), digital media, including the internet, reduce distribution costs (for every traditional media, if printed, and also for radio and TV), but it does not reduce the costs of content production, which means that content production has the same price regardless of whether it is distributed by traditional means or via

[1] *https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf*
[2] *https://unesdoc.unesco.org/ark:/48223/pf0000158787*

the internet (van der Wurf, 2008: 67). It actually presupposes that the production of high-quality content is as 'expensive' as it was before the digital media existed, which means that, for the future of lifestyle media, journalistic professionalism and editorial policy are still fundamental categories of journalism, regardless of the platform on which the content is published, especially in the context of sustainable development. The fight for readers and financial sustainability is a big challenge, above all in times of crisis, as witnessed during the coronavirus pandemic. Some publishers, faced with an even greater decline in newsstand sales, have turned to the strategy of increasing the quality and price, in order to offer the audience analytical and high-quality content for which that audience will then be willing to spend money. The reputation of printed media as a reliable source of information is still unshaken, and some publishers have decided to increase the subscription price and in general the price of magazines on newsstands. In a world flooded with misinformation, readers have shown a willingness to pay more for information they know they can trust. The audience has also begun to reward media companies that emphasize their social responsibility and encourage sustainable activities, with an emphasis on ecology, i.e. topics related to the sustainable development of society. In line with the aforementioned, the main goal of this paper was to examine the attitudes and opinions of readers of lifestyle media in the Republic of Croatia (hereinafter: the respondents) about the present and future of lifestyle journalism on the market of the Republic of Croatia, with a special focus on the expected effect of including topics about sustainable development of society on the reading interest of media users (the so-called general media audience), readers and non-readers of lifestyle media, as well as on the general experience of lifestyle media. From the main goal of the research, three sub-goals emerged: (1) to examine the attitudes and opinions of lifestyle media readers in the Republic of Croatia about the role of lifestyle journalism in modern society; (2) to examine the attitudes and opinions of lifestyle media readers in the Republic of Croatia about their preferences regarding the content of lifestyle media and suggestions for new content; (3) to examine the attitudes and opinions of lifestyle media readers in the Republic of Croatia about the potential of including topics related to sustainable development in lifestyle journalism.

2. RESEARCH

2.1. Research methodology

The research was conducted using qualitative methodology, the focus group method. Focus group is a group interview method in which interaction takes place between of the moderator and the group, as well as among the group members, which helps to extract and reveal information and insights with carefully designed questions. The distinctiveness of the focus group is the ability to generate data based on the synergy of group interaction (Skoko, Baneković 2009: 217-236). The method provides a deeper understanding of the way in which a certain group of people thinks about a topic. The basic premise of this qualitative approach is to collect diverse views (if any) of the topic. In the first stage, a short questionnaire was created for the purpose of recruiting respondents, which contained questions about gender, age, education and the lifestyle media they read (title, type of publication, frequency of reading, edition preference). In the second stage, respondents were recruited from the panel of respondents of Promocija plus[3], a centralised database of respondents who gave their prior consent to be invited to participate in the research, and about whom the agency has certain information about socio-demographic profile and behavioural and consumption habits in the area of shopping, i.e. consumption of products and services. The recruitment was conducted via e-mails and by telephone combined. During the recruitment communication, the purpose of the research, the topic of the focus group, the duration, the implementation method and the method of personal data processing were briefly explained to the potential respondents.

[3] *Promocija plus is a professional market research and public opinion polling agency in the Republic of Croatia.*

In the third stage, a group discussion was conducted. After the focus group was held, in the fourth stage, a transcript of the group discussion was compiled, and in the last, fifth stage, an analysis of the focus group was made. Each respondent[4] received a GDPR form prior to the arranged date of the focus group, which clearly defines the method of personal data processing and all the rights of the participants in this research. In accordance with the epidemiological situation (COVID-19) in Croatia, the focus group was held via the Zoom application and lasted 90 minutes. A Guide was prepared for the purpose of moderating the group discussion, which contained topics and general questions, with the moderator following the logic of the discussion and the respondents' freedom in answering, making sure that all discussion topics were covered. The Guide was created according to the principle of a guided conversation from general to more specific questions. For the purpose of the discussion, auxiliary materials were used – real examples of articles related to sustainable development, which were published recently in lifestyle media in Croatia. All participants in the group discussion as well as the moderator of the group discussion had access to the materials. The focus group was recorded in audio format with the consent of the respondents, and the transcript of the audio recording of the group discussion, accompanied by the notes taken during the group discussion, represented the basis for the content analysis of the group discussion. The research was conducted on July 22th 2021. All respondents have been regular readers of lifestyle media for five years or more, female, with completed secondary and higher education. A total of 6 persons participated in the group discussion. The respondents are readers of two or more lifestyle media, printed and/or online. The respondents include readers of the following media: *Gloria*, *gloria.hr*, *Story*, *story.hr*, *Cosmopolitan*, *cosmopolitan.hr*, *Grazia*, *journal.hr*, *Elle*, *elle.hr* and *ljepotaizdravlje.hr*, and the composition of the sample of respondents was as follows: 6 female readers of two or more lifestyle media; 6 persons who read printed and online editions of lifestyle media; 3 persons with completed secondary education and 3 persons with completed higher education; 3 persons prefer the digital edition, and 3 persons prefer the printed edition of lifestyle media; 2 people aged 25 to 34 years, 2 persons aged 35 to 44 years and 2 persons aged 44 to 55 years.

2.2. Research results

The analysis of the focus group follows the order of topics in the moderator's Guide. The conclusions of the research are supported by respondents' statements in selected cases, which will be presented in italics.

2.2.1. Role of lifestyle journalism in society

For all respondents, the role of lifestyle journalism is unquestionably positive, with fun as the motivation point from readers' perspective, and respondents gave the following answers describing the role of lifestyle journalism: fun, relaxation, distraction, distance from reality, distance from serious topics, rest, completing free time with something interesting.

- *„It provides us a glimpse into the lives of beautiful, successful and handsome people." (Respondent No. 1)*
- *„Lifestyle journalism brings a little more laughter. Not everything has to be bad news." (Respondent No. 3)*

At the mention of lifestyle journalism, the following associations popped into respondents' mind: celebrity, other people's lifestyle, fashion, actors, singers, travel, success stories, beauty, glamour. When asked about how they would describe to someone else what lifestyle journalism deals with, all respondents answered that they would mention dealing with famous people.

[4] *The term "respondent" in this paper refers equally to male and female respondents.*

- *„Lifestyle journalism deals with famous people, glamour, travel destinations." (Respondent No. 3)*
- *„Lifestyle journalism deals with social life, lifestyle, culture, travel and technological news. Lifestyle journalism is more focused on female readers." (Respondent No, 5)*
- *„Lifestyle journalism deals with various relaxing topics, primarily with famous people." (Respondent No. 1)*
- *„Lifestyle journalism deals with other people's lives and stories, travel, gastronomy and fashion." (Respondent No, 6)*

Lifestyle journalism, on average, is perceived as quality journalism. Some of the respondents believe that lifestyle journalism, although of high quality, is still less demanding than other types of journalism, mostly due to the „surplus" of texts about famous people, and the „deficit" of serious informative and educational topics. At first, respondents stated that there is fake news just as in other types of journalism, but from further argumentation it is evident that, according to them, lifestyle journalism does not have an issue with fake news. Furthermore, respondents do not think that articles that are presented are entirely false in their content, but the opinion is that there are occasional examples where „reality is spruced up", mostly in the presentation of people and personal stories, as well as in journalistic texts which, according to them, are essentially disguised advertisements of products and services. Specifically, the quality of lifestyle journalism in Croatia is described as of good quality because it meets readers' expectations. For the respondents, that type of journalism has its loyal readers and its clear function of entertainment. On the other hand, opinions are divided when it comes to the difference between lifestyle media and celebrity media. For the respondents, there is a difference between lifestyle media and celebrity media. This attitude is argued by the fact that celebrity media deals exclusively with famous people, while lifestyle media deals, according to them, with a significantly larger number of topics that celebrity media does not deal with. As an example, they state that celebrity media does not deal with healthy diet, fitness, psychology and similar topics. The respondents are not sure about their understanding of what exactly tabloid media is, and accordingly, they are not sure about their opinion as to whether there is a significant difference between lifestyle media and tabloid media. Part of the respondents uncertainly state that the tabloid media is still uniquely characterised, as they say, by *„screaming headlines in which they reveal something, an affair, etc."* (respondent number 2), which is not the communication style of lifestyle media. The other part of the respondents theoretically assumes that there is still a difference between lifestyle media and tabloid media based on the fact that there are two different media names, but there is a lack of a more precise argumentation as they do not know the definition or content of tabloid media. The respondents believe that lifestyle journalism has a positive perception among its readers and that they perceive it as interesting, entertaining, mostly credible journalism and that readers feel good and relaxed reading the topics available to them, which is exactly what they expect from lifestyle media. On the other hand, they believe that the perception of lifestyle journalism among non-readers is completely the opposite, even underestimating. They assume that non-readers perceive lifestyle journalism as „easy topics", „easy newspapers", superficial „yellow press", uninteresting and, particularly, but not exclusively, intended for male population. The main difference between readers and non-readers, according to all respondents, is that they have different thematic interests. In addition, the respondents also indicate the following reasons for non-readers: the lack of time for reading due to daily obligations and the general lack of interest in reading any type of media. For a part of the population of non-readers, they indicate a potentially greater focus on the media that are more focused on one topic, and some even indicate psychological reasons such as „jealousy" in the context of the feelings that certain people, non-readers, have towards famous and successful people and the presented lifestyle, because, in some way, lifestyle media „frustrates" them on a personal level.

2.2.2. Content preferences, new content suggestions and the future of lifestyle journalism

Thematic interests of the respondents are, as expected, heterogeneous, and their reading interest is not focused exclusively on one, but practically on all topics covered by the lifestyle media. All topics covered by lifestyle journalism are interesting to them, and in that sense, they do not „skip" anything, but they maybe pay a little more attention to some topics when reading. Respondents are very interested in topics such as fashion, travel, home decoration, stories about famous people, gastro stories and affirmative topics about beauty and health. The discussion showed that, among all the topics, travel is the most interesting to respondents, as it offers practical ideas about destinations that they would also like to visit. In the context of the reading interest, the respondents point out that there are no topics covered by lifestyle journalism that would be of little or no interest to them as readers. It is the heterogeneity of topics that lifestyle journalism „offers", in their opinion, that is the greatest value that the reader „gets". In general, there is no topic that the respondents would completely exclude from the editorial policy of lifestyle media, but there are only certain unacceptable ways of presenting some topics, precisely the lives of famous people. A special emphasis is on the presence of children and the way they are treated in journalistic stories. They believe that there is a very fine line between appropriate presentation and harsh exploitation of children who are part of a specific journalistic story, even if there is a consent of their parents to write about their child and present the accompanying photos. In general, respondents believe that lifestyle journalism in terms of the current thematic offer is well conceived. During the discussion, the following ideas for upgrading the existing topics (travel, gastronomy) emerged, i.e. some topics that, from their perspective, are missing or are poorly represented, namely: pets, healthy diet, do-it-yourself (practical advice on how to do something by yourself), travel inside Croatia as opposed to foreign destinations that are most often represented in lifestyle media, ecology with a special focus on climate change. In addition, the respondents are aware of the great influence of advertisers on lifestyle media and that often advertisers influence the choice of topics, but they have no great objection to such practice. Moreover, they accept the influence of advertisers that offer a product or a service in the field of health and beauty, which they assess as good or better than what they may be currently using. Some of the respondents believe that advertising in lifestyle journalism is somehow more natural and more expected than in some other types of journalism. They believe that this influence is inevitable and see no way to change it. They are aware of the fact that the media „make a living" from advertising.

- *„Yes, they are under the influence of advertisers, but that is not necessarily bad. If they recommend a new hair shampoo that might be better than the one I'm currently using, that's certainly not a problem. It doesn't seem like a negative thing to me." (Respondent No. 4)*
- *„I like to see a good ad that has something new for me." (Respondent No. 2)*
- *„If it's not aggressive, it's acceptable." (Respondent No. 1)*
- *„Lifestyle journalism and beauty products go together." (Respondent No. 6)*

The opinion of all respondents is that the influence of advertisers is more or less equally represented in all types of journalism, although it seems to be somewhat more pronounced in lifestyle media. They assume that, for all current readers of lifestyle media, advertising is not an issue that reduces their interest in reading lifestyle media. On the other hand, the respondents believe that there is a certain potential to increase the number of lifestyle media readers without specifying the extent of the potential. They suggest two types of improvements – one is the introduction of new topics and the other is the inclusion of additional attachments (gifts for readers) in the existing thematic content of lifestyle media. When it comes to thematic expansion, respondents suggest new topics such as sports and cars that would potentially attract male readers, but there is a certain attitude that such topics could also attract a certain part of the female population. Without specifying, the respondents state that, apart from sports and cars, there are also some other topics that could be included in the editorial policy of lifestyle media, although they currently have no clear idea of what exactly those topics would be. At the same time, there is a concern among the respondents, as they say, that maybe „there would be too much of everything" if some additional topics were included to attract new readers. Attachments in the context of gifts (testers, coupons for the purchase of products and services at a discount) for readers seems to them as a very good strategy that could increase the number of readers compared to the current number of readers.

- *„I always buy a magazine when there are coupons." (Respondent No. 2)*
- *„Coupons should not only be for buying products, which is usually the policy. They can also be for consumption in restaurants and cafes, tourist accommodation, etc." (Respondent No. 1)*

For web portals specifically, respondents suggest that they present all content that can be found in the printed edition of the lifestyle media („the same articles from the printed version of the magazine available for reading in full online") and move away from subscription, which they think turns away a part of current readers. On the other hand, some respondents admit that they are attracted to articles with such limited access and then they „run to the newsstand" to buy the magazine because they want to read it in full.

- *„Web portals should allow readers to read the articles in full, just as they should allow them to read all the articles that are included in the printed version. Subscription will certainly not increase the number of readers. On the contrary, it could turn some of us current readers away." (Respondent No. 5)*
- *„It also annoys me that I can't read anything lately. That turns me away a bit." (Respondent No. 1)*

Regarding the expected future of printed lifestyle media and lifestyle web portals in terms of the number of readers, in the context of printed editions, all respondents expect a decrease in the number of readers caused by an increase in the number of readers of lifestyle web portals. At the same time, they cannot determine with certainty how many subscribers there will be in the expected growth of readers of lifestyle web portals and how many of them will read only limited versions of articles on lifestyle web portals. The respondents believe that the printed edition provides a better reading experience if the reader has the interest and more time to read the contents available in the magazine in detail. Respondents ask „out loud" how much this fast-paced modern way of life laden with responsibilities will be an aggravating circumstance for printed magazines and will it leave time for readers to read them "in peace" and in their entirety, as it was done in previous times. Part of the respondents do not think that printed magazines will completely lose their place on the market ("die out"), but they cannot predict exactly what their position will be in the future, while some others think that printed media are slowly fading into the past. The respondents who prefer the printed edition are somehow not happy with the fact that lifestyle media will earn recognition on the internet more and more, but they believe that this is inevitable and has already begun. They also assume that at some point they will read the online edition more often.

- *„New generations will certainly not go to the newsstand and buy a magazine." (Respondent No. 3)*
- *„Time is on portals' side." (Respondent No. 1)*
- *„I think that online reading already exceeds the reading of printed editions of lifestyle media." (Respondent No. 5)*
- *„Today's children are not used to reading in paper form. They only use mobile phones all day long." (Respondent No. 2)*
- *„I would like young people to get into the habit of reading magazines in printed form, but I'm afraid that will become a thing of the past." (Respondent No. 4)*

When it comes to the perception of the current availability of topics related to sustainable development in the lifestyle media from the reader's perspective (without reminding the respondents of the examples of actual articles in the media in the recent past in the Republic of Croatia), except one isolated case, the respondents' attitude is that the lifestyle media almost do not contain topics related to sustainable development, considering how rarely they appear in Croatian lifestyle media. The advocates of more frequent inclusion of topics related to sustainable development believe that such topics have the potential for a more positive image and readership of lifestyle media. According to them, it would perhaps change the perception of some non-readers who consider lifestyle journalism „yellow press". They are aware that sustainability has become a social concept that is increasingly being imposed on the general and professional public. The topics of sustainable development, according to their statements, would give a dose of seriousness to lifestyle media. This would potentially, among other things, act as a magnet for new readers open to this kind of topic. After the moderator reminded the respondents by showing them examples of real articles that had been published in the recent past in printed lifestyle media in Croatia, the attitude of the respondents did not change; they still claim that articles related to sustainable development are extremely rare in printed and online editions of lifestyle media. At the same time, the respondents claim that the examples of those articles they read are of high quality and interestingly presented, both in terms of text and accompanying photographs. They would undoubtedly like it if there were more (in one average issue) and more frequently (in each issue) articles related to sustainable development in printed and online editions of lifestyle media. When asked about why they like articles related to sustainable development, they characterise them as interesting, serious, smart, inspiring and educational.

- *„I really like such articles because they are extremely educational. They make you think. You can learn a lot from them." (Respondent No. 4)*
- *„Why not! That would be a good mix of topics with what lifestyle media offers today." (Respondent No. 6)*
- *„Such articles are definitely needed. I think that such topics could be interesting to young people as well." (Respondent No. 1)*
- *„Those articles should be included. Those are wonderful topics." (Respondent No. 4)*

2.2.3. Potential of including topics on sustainable development in lifestyle journalism

There is no doubt among the respondents that the more frequent inclusion of topics related to sustainable development would have a positive response among current readers of lifestyle media. They do not expect that such topics would turn away any of the current readers and they suggest that the topics on sustainable development be included among the current topics covered by lifestyle media.

- *„I would certainly be interested if the lifestyle media wrote more often about topics related to sustainable development. I'm sure others would be too." (Respondent No. 3)*
- *„Great, these are positive topics about the world we all desire. Everyone would be attracted to such topics, no doubt." (Respondent No. 2)*
- *„Very interesting topics that concern all people. It's educational." (Eespondent No. 4)*

The respondents thus expect that topics related to sustainable development would also attract a part of those who do not read lifestyle media, and especially those to whom lifestyle media are currently not attractive because they perceive them as „yellow press" and „gossip", i.e. media that deal with superficial topics. Their inclusion in the regular editorial policy, according to the respondents, would certainly affect the general perception of lifestyle media among those who do not currently read them.

- *„I think that the topics on sustainable development are interesting to everyone. I think those topics would attract more readers because they would no longer perceive lifestyle magazines as a gossip newspaper. I think that even those who do not read would find something for themselves among all the topics covering sustainable development." (Respondent No. 6)*
- *„The topics on sustainable development are positive and they distance us from the negativity that we often find in the media." (Respondent No. 5)*
- *„It would be a stepping stone to higher-quality journalism, but it would not be as serious as daily newspapers." (Eespondent No. 2)*

More frequent inclusion of topics related to sustainable development in the editorial policy of lifestyle media would certainly, according to respondents, have a positive impact on the general perception of lifestyle media. Moreover, they believe that this positive impact would be significant.

- *„Those who call such journalism "yellow press" would see that there are also serious topics that are ongoing at the same time." (Respondent No. 1)*
- *„More frequent inclusion of topics related to sustainable development would be a great additional plus for lifestyle media." (Respondent No. 3)*
- *„Those are the topics that have a strong impact on people's consciousness, they make them to think. It is needless to say how valuable these topics are for the entire population." (Respondent No. 5)*

Regarding the editorial policy of magazines, the respondents think that the topics related to sustainable development should be included as follows: (1) topics related to sustainable development should become a regular topic of lifestyle media; (2) topics related to sustainable development should become one of the existing topics of lifestyle media; (3) topics related to sustainable development should occasionally be on the front page as well as other topics; (4) topics related to sustainable development should be rotated in different positions (beginning, middle or end of the issue) like other topics. Regarding the position of those topics in magazines or on web portals, expectations are mainly focused on changing positions in various editions. None of the respondents believes that topics related to sustainable development should have a fixed position, nor that the amount of content on sustainable development, in an average edition, should prevail over other topics.

- *„If topics related to sustainable development were to prevail over other topics, then that lifestyle would be totally lost. It would no longer be relaxing, but something else." (Respondent No. 4)*

In addition, the respondents believe that it would not be a problem to include such topics as much as possible, because they believe that journalists are adequately educated to cover topics related to sustainable development. If necessary, journalists can be trained in specific topics or they can consult experts in certain fields for the purposes of preparing the topic. According to them, it is important, as always, to do research and to prepare for the topic they are writing about. Furthermore, they assume that journalists would be motivated to cover the topics related to sustainable development more frequently. All participants in the group discussion believe that, by introducing topics related to the sustainable development of society, the concept of the editorial policy of lifestyle media would be improved, which would ultimately have a positive effect on the perception of lifestyle media and create preconditions for increasing the interest of both current readers and those who do not currently read lifestyle media. They believe that it is also important that the publisher "lives" sustainably and that it is integrated in their business. When it comes to printed media, according to the respondents, it would be convenient if lifestyle magazines, if possible, were printed on recycled paper. Such a credible practice would be a stronger basis for attracting new readers.

3. CONCLUSION

Lifestyle journalism, from the perspective of respondents – readers of lifestyle media, has its clear and positive role and a certain future. For them, this type of journalism is a mixture of fun, rest and relaxation in their free time. At the same time, as readers, they feel positive with a clear distance from the negativity and bad news that sometimes surround them in their personal lives or that they come across, for example, in daily newspapers. They do not hide that the lifestyle magazine, or the web portal they read, offers them a kind of escape from reality. Lifestyle journalism covers numerous topics and the respondents really like this thematic heterogeneity („a little bit of everything"). Although entertainment is the primary motive for reading lifestyle media, sometimes they „steal" practical ideas for their own life from lifestyle media, such as what and how to dress, where to travel, try a new product or try a new recipe. From the perspective of the respondents, lifestyle journalism does not have a problem of fake news, but sometimes they notice the great influence of advertisers, to which they have no significant objections. Some of the respondents consider advertising in lifestyle journalism to be a more acceptable and "natural" fact than in other types of journalism because, for example, lifestyle journalism and beauty and care products go hand in hand. As for the future of lifestyle journalism, in the relation between printed and online lifestyle media, the respondents expect further decline in the number of readers of printed editions and an increase in the number of readers of lifestyle web portals. Those who prefer the printed edition of lifestyle media have the same expectations, that they will gradually read web portals more and more. For the younger generations to come, they have no doubts that lifestyle web portals will be their only choice. In relation to the current number of readers, the respondents believe that a certain increase in the absolute number of readers both in the printed and online edition is possible. In this context, they propose two courses of action. One is the strengthening of marketing activities through more frequent stimulation of readers, and the other is the introduction of new topics. As additional stimulation, the respondents suggest gifts for readers on the cover of magazines. Regarding the introduction of new, additional topics that would interest new readers, they suggest two aspects of improvement – one is the improvement of existing topics, and the other is the introduction of new topics such as pets, do-it-yourself, sports, cars and topics related to sustainable development.

Of the topics mentioned, the greatest potential is attributed to topics related to sustainable development. A more significant inclusion of topics related to sustainable development would be, according to the respondents, a big additional plus for the successful business future of lifestyle media. Not quantifying the extent, the respondents have no doubt that, by introducing topics related to the sustainable development of society, the current concept of the editorial policy of lifestyle media would be improved, which would ultimately have a positive effect on the general perception of lifestyle media and the overall interest of both current readers and those who do not currently read lifestyle media.

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COUNTRY IMAGE EFFECT AND BRAND IMAGE INFLUENCE ON CONSUMER PERCEPTION OF LUXURY FASHION PRODUCTS: A CASE OF UAE MADE LUXURY FASHION

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ABSTRACT

Highly lucrative UAE luxury fashion market has attracted countless of the world's most famous luxury brands while local luxury brands questioning whether a UAE made luxury fashion can compete in the market or not. This research will study the COO effect of UAE on consumer's overall luxury value perception, entailing utilitarian, symbolic and economic value perception. It will also analyze the role of brand image upon luxury value perception aspects. Qualitative method was utilized, conducting in-depth semi-structured interviews with 15 millennial female luxury consumers. The finding suggests that UAE does not portray a favorable image that would elevate luxury fashion consumer perception. Lack of experience effects utilitarian value, lack of fashion equity and recognition effects both symbolic and economic value perception. Finally, findings advocate the positive effect of a strong brand image on utilitarian value and symbolic value perception.

Keywords: *Consumer Perception, Luxury Fashion, UAE, UAE Made Luxury Fashion, Country Image, Brand Image Influence*

1. INTRODUCTION

Luxury market has been expanding since 1995 worldwide (Amatulli & Guido, 2011), particularly in southwest Asian economies, due to drastic economic expansion and development. The economic expansion of middle east, precisely the gulf market, has driven up the demand for luxury products, and encouraged many brands to enter the markets in Middle East, with US$ 320 bn spent on luxury fashion (Ramadan & Nsouli, 2021), of which the UAE is a major player. In the past decade UAE has become the ultimate luxury destination by assembling world's most renowned luxury brands in its lavish shopping malls (Murray, et al., 2021). This level of market contribution, increases its attraction, incentivizing move to this industry, particularly for local investors and designers. Despite all, UAE may hardly come across as a luxury fashion producing country, at the same capacity of renown fashion producing countries such as France and Italy, that would elevate consumer perception (Piron, 2000). Because luxury products COO's image, impacts luxury consumeres perception on each aspect of luxury value (Vijaranakorn & Shannon, 2017). Studies show that there lies a relationship between desirability of product's COO and consumers' preference for that product (Ittersum, et al., 2003). Given the prospects of the industry in UAE, this research was undertaken to uncover UAE's country image effect on perceived luxury values of UAE made luxury goods, as well as, brand image's influence on country image and luxury value perception. Finally, this research hopes to provide managerial insights and strategies to elevate the country image and brand image in case of a negative county image perception. In addition, this research aspires to add value, through its novelty in studying consumer perception of UAE made luxury fashion products, since this industry is relatively new and research pertaining to it are rare.

2. LITERATURE REVIEW

Products predominantly exhibit two sorts of informational cues namely extrinsic (i.e. price, packaging, warranty) and intrinsic (i.e. design, performance) (Piron, 2000). Brand name and COO are two of the extrinsic informational cues, that allow consumers to draw instant evaluation and assumption of the product, particularly when there's a lack of prior experience. According to Miller (2011), more than a quarter of the consumers make their purchase decision with regards to the COO. Stereotypes and reputation attached to a country, further shapes perception of its products that stems from "national characteristics" and "economic and historical background" of the country, that allows it to be distinguishable from others (Piron, 2000). To that end, scholars consider COO to be a prominent indicator of the favorability of the product in the market (Roth & Diamantopoulos, 2009). However, in studying the COO effect, the *product category* should be carefully considered as country image can have both positive or negative impact on different product categories; meaning depending on the type of the product, the COO's effect can change for the same country (Vijaranakorn & Shannon, 2017). Country image has different aspects in its construct that shapes the overall consumer perception, namely affective, cognitive and Normative (Laroche, et al., 2005). Cognitive aspect, is an active evaluation to attest the quality level - reliability and durability- of the products (Li & Wyer, 1994). Affective aspect of COO impacts consumer perception (Batra, et al., 2000), through emotional and symbolic associations that consumers make based on stereotypes towards a country constitutes a desirable or less desirable country image (Verlegh & Steenkamp, 1999). Lastly, the normative or conative aspect is the consumer's intention with the COO (Laroche, et al., 2005) based on their social and personal norms and moral compass (Verlegh & Steenkamp, 1999). Positive brand image is potential promoter of consumer perception (Koh & Fang, 2012), as it elevates perceived utilitarian value and quality (Yu, et al., 2013). Yet country image has a significant impact on brand image, (Roth & Diamantopoulos, 2009) as well as consumer's product evaluation (Piron, 2000). "Country Image" influences the perception and purchase intention, *brand commitment*, as well as the behavior of both the users and non-users of a luxury brand (Coudounaris, 2018). In case of a less favorable COO image, brands may benefit from lower recognition of the COO, hence allowing them to attract consumers based on their brand capabilities (e.g. quality) (Diamantopoulos, et al., 2011). Moreover, many emerging economies show tendency to create brand names that indicate a favorable COO, while the COO may or may not be what the consumer is looking for. such incongruence has significant effect on hedonic products (Melnyk, et al., 2012). Moreover, studies show direct relationship between country image and brand awareness, brand loyalty and perceived quality particularly for luxury fashion brands (Jung, et al., 2014; Baldauf, et al., 2009). This study found country image attributes such as *cultural assets*, *fashion equity* and *technological advancement*, to be instrumental in raising consumers' luxury fashion brand awareness. Hence, COOs with strong fashion image create a more solid consumer perception and evaluation, resulting in stronger purchase intention towards their fashion luxury products (Kim, et al., 2017). The fashion equity is constituted by the country's involvement in the fashion world in terms of number of luxury fashion designers, brands and celebrities (Jung, et al., 2014) which are of the cultural aspect of the country image. Moreover, studies confirmed that COO image can be positively promoted via cultural appropriation and branding, to increase consumer's perception towards a country and its outputs (Suh, et al., 2016).

2.1. Country of Origin Image & Luxury Value Perception

The most prominent reason for the COO to be displayed on the product is to assure the consumer of the quality, reliability, durability and safety and reduce perceived purchase risk (Adina, et al., 2015), particularly where there's lack of prior knowledge and experience (Lobb, et al., 2007), which involves engages the cognitive aspect of country image (Bloemer, et al., 2009). Utilitarian perception is created by the knowledge of the country's economic and political background. Utilitarian value is constituted by the level of *economic development* of the COO; High development level (economic and technological) of the COO, results in high quality perception (Li, et al., 2014).

In addition, national prosperity and high living standards (Lascu, et al., 2020; Vijaranakorn & Shannon, 2017; Jung, et al., 2014). country's skill level and education (Lascu, et al., 2020), as well as reputation and experience in producing that product category (Kalicharan, 2014) are influential in utilitarian value perception. Country image offers hedonic benefits such as social and symbolic values (Shukla, 2011) in case of luxury consumption (Vijaranakorn & Shannon, 2017). By purchasing luxury products, consumers are looking to obtain status value (Jackson & Bruce, 2004). Luxury consumption is the means for consumers to exhibit financial prosperity and success (Shukla, 2010). Luxury brands are means to exhibit predilection of certain lifestyle and status, as well as "self-expression" for its consumers (Vijaranakorn & Shannon, 2017). In addition, luxury consumption is the means for enhancing *actual*-self-image, while displaying the consumer's *ideal*-self-image (Wilcox, et al., 2009). Furthermore, Consumers' desire for uniqueness forms their perception and purchase intention towards luxury consumption to achieve their ideal self-image (Forsythe & Bian, 2012). Avoiding social norms in consumers is a factor pushing consumers to seek beyond the norm, such as what a favorable country image can offer (Qiu, et al., 2017). Moreover, luxury consumption and luxury value perception, also encompasses financial and individual requirements as well (Wiedmann, et al., 2009). The study found that country image to be a highly influential factor on perceived value for money (Abdelkader, 2015). Luxury consumers are prone to conspicuous consumption as it displays their status and wealth, which ultimately increased their willingness to pay premium for quality and status (Schultz & Jain, 2018). The Study found that luxury consumers' overall *value* perception is built upon functional, symbolic aspects as well as value for money (Vijaranakorn & Shannon, 2017). Studies suggest that the perceived luxury and willingness to pay premium by the consumers, are heavily influenced by their perception of the brand's COO (Sichtmann & Diamantopoulos, 2013), and COO's favorability increases willingness to buy expensive brands (Koschate-Fischer, et al., 2012).

2.2. Conceptual Framework

Luxury value for consumers constitutes their overall luxury perception of a given product, and has utilitarian value, symbolic value and economic value in its construct (Vijaranakorn & Shannon, 2017; Jung Choo, et al., 2012). In their framework Vijaranakorn & Shannon (2017), have demonstrated the country image effect on each aspect of the overal luxury value, and further on the purchase intention. Diamantopoulos, et al. (2011), introduced a framework model in which they studied the two way relationship between the COO and brand image, and revealed the enhancing impact of brand image upon COO. A positive brand image can indicate high quality level (Yu, et al., 2013), that overall can improve consumer perception where COO is not well known (Diamantopoulos, et al., 2011). To this end, this research has developed a framework that incorporates both the country image and brand image perception effect on three different aspects of the overall luxury value including Utilitarian, Symbolic and Economic Value, and examines its total effect on the consumer perception, as shown in figure (1). UAE's country image perception and effect are the subject of the scrutiny and whether an appraised brand image can further improve the total perception regardless of the country image perception. Ultimately, the research will determine the overall consumer perception of UAE made luxury products by a collective of perception of different aspects.

Figure following on the next page

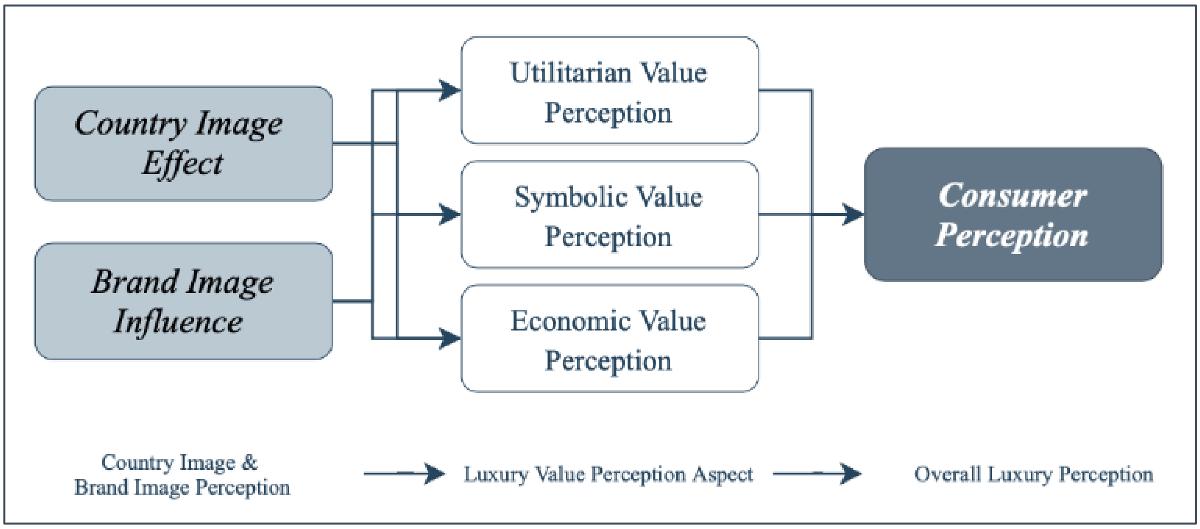

Figure 2: Conceptual Framework

3. ANALYTICAL STRATEGY

A mono qualitative method was employed, depending solely on semi-constructed interviews as a data collection technique, to ensure uniformity, and flexibility to provide in-depth insights about the behaviors resulted from real-life experience and gather a richer data set (Schultz & Jain, 2018). In addition, template analysis is employed to continuously update these priori codes to capture all relevant and recurring themes manually (Saunders, et al., 2019). Study will be conducted on a group of female millennial luxury consumers residents and non-UAE residents who visit UAE as a luxury shopping destination, to account for the level of diversity and multiplicity of ethnic backgrounds, in UAE.

4. FINDINGS & DISCUSSION

4.1. UAE Country Image Effect: Utilitarian Value Perception

4.1.1. Technological, Economic Advancements & National Prosperity

Majority of the respondents mentioned that they expect Average – High quality from UAE made luxury brands, and with very few expecting Low quality. Participants with average-high quality expectation identified and expressed economic and technological development (Vijaranakorn & Shannon, 2017) of the UAE as a prominent factor. As an example, respondent 5 mentioned, “the UAE has the technology, it has the funds, and … the resources to create a durable brand”. Hence, concluding that technological and economic development of UAE elevates its cognitive country image, positively effective in utilitarian perception (Li, et al., 2014). Furthermore, the perception of UAE being a luxury destination, offering high quality luxurious experiences and services has further enhanced the overall luxury quality perception. Respondent 14 who have visited UAE have mentioned: “I have very high expectations of anything related to UAE, as the country itself projects very high standards”. The prospect of high-quality service and luxury travel destination, translates to higher product quality perception in the eyes of consumers (Jung, et al., 2014), that concludes national prosperity and high standards of living that elevates utilitarian value perception of UAE made luxury products (Lascu, et al., 2020; Vijaranakorn & Shannon, 2017).

4.1.2. Education, Skill and Industry Experience

The utilitarian value perception of UAE luxury products, is also constructed upon the level of education, skill and experience (Lascu, et al., 2020; Vijaranakorn & Shannon, 2017). Despite UAE’s economic and technological advancements, national prosperity, existence of talented artists, lack of specific fashion industry related education and experience is factor that tarnishes the utilitarian value perception of luxury fashion products, according to majority of the participants. Respondent 8 mentioned "lack of institution or knowledge or expertise" in fashion to be reason behind her average quality expectation is the lack of specialty in the field of fashion. As a result, UAE's lack of fashion education and expertise demotes the overall perception particularly (Vijaranakorn & Shannon, 2017; Kalicharan, 2014) in case of "high status" products (Lascu, et al., 2020). Finally, lack of long heritage and reputation among UAE brands is another demoting factor as identified by the responders. Respondent 8 mentioned that she wouldn't trust the quality "as much" as the famous luxury brands because, they already established "trust globally". Hence, brand heritage can also influence perceived utilitarian value and trustworthiness (Wuestefeld, et al., 2012), and further existence of numerous heritage brands elevates overall country image utilitarian perception (Vijaranakorn & Shannon, 2017).

4.2. UAE Country Image Effect: Symbolic Value Perception

4.2.1. Fashion Equity & Cultural Assets

Majority of the respondents considered UAE's lack of fashion equity and favorable *fashion image* (Kim, et al., 2017), to be a major demoting factor for symbolic value perception. Respondent 9 mentioned: "[brands] that hold Paris Fashion Week [etc.], they're representing themselves and their country" signifying lack of fashion related activities ultimately devalues UAE's fashion equity and country image and degrades symbolic value perception. In addition, majority confirmed the cultural asset of the country image influence on forming their perception. Respondent 6 mentioned: …when you watch movies like Coco Chanel, we've seen that heritage and we've seen this form of *self-expression* through that luxury". Exemplifying respondent's regards for the respective *culture* of the brand, and self-identification with that culture, shaping her symbolic perception. Therefore, cultural assets and fashion equity of a country image, potentially effects consumers' symbolic value perception (Kim, et al., 2017; Jung, et al., 2014).

4.2.2. Uniqueness

Majority of the respondent acknowledged that if a product is unique and allows them to stand out (based on their aesthetic inclination), they can easily overlook the country of origin and brand name. Respondent 15 clearly mentioned that her "driver is the uniqueness" that will "definitely" impact her final decision. Hence concluding that despite the country image effect on symbolism, country image effect was not found to stand in the case of CNFU. These results are in accordance with that of Qiu, et al. (2017), that confirmed country image effect on symbolic perception, yet not on the uniqueness.

4.3. UAE Country Image Effect: Economic Value Perception

4.3.1. Fashion Equity & Heritage

Many of the participants have recognized fashion equity as one of the most important criteria that shapes their economic evaluation perception. Hence, adding value to the brands economic and symbolic value (Baldauf, et al., 2009). Respondent 2 mentioned she will expect a lower price point of local luxury brands with the same quality since the likes of "Gucci [have] *history* in the industry in terms of the *arts that they create*" pointing out the importance of heritage in forming economic value perception. The relationship between the brand heritage and perceived economic value found in this study is in accordance with the findings of Wuestefeld, et al. (2012) that proves brand heritage promotes the perceived economic value among the luxury consumers. Finally, the results, are in accordance with that of Vijaranakorn & Shannon (2017) that demonstrated how positive affective country image of Italy has promoted its luxury products' economic value.

In addition, according to Sichtmann & Diamantopoulos (2013) country image as a whole has been proven to devaluate economic value perception, which further approves the above findings.

4.3.2. Recognition & Conspicuous Value

Majority agreed that lack of *recognition* among UAE brands, precludes the conspicuousness, and as a prominent reason for their lower price expectations. Many of the respondents pointed out the importance of recognition locally and globally in order to achieve their desired image (Wilcox, et al., 2009). Many of the interviewees connected UAE's image to brand conspicuousness value, and their low economic value perception as a result. Respondent 14 mentioned the reason behind her low economic value perception is "Because the UAE brand isn't known. I am definitely willing to pay for the quality of that, but not for the brand value". Lack of conspicuousness and recognition of UAE brands, and lack of recognition of UAE as a luxury fashion producing country (fashion equity), has a negative impact on UAE country image. This implication is consistent with the results from a study by Piron (2000), that confirmed the relationship between country image and perceived conspicuousness. This established relationship (country image effect on conspicuousness), further extends to the perceived economic value. According to Schultz & Jain (2018), perceived conspicuousness, the ability to display status and wealth, has direct influence on perceived economic value, a finding that this study comes to share as well.

4.4. Brand Image Influence: Assured Quality & Reputation

Almost all respondents confirmed assertively, that assured quality and satisfactory experience with a brand, improves their utilitarian perception (Lobb, et al., 2007). Some of the respondents also mentioned/confirmed the influence of interpersonal information such as consumer reviews and word of mouth to be a promoter of their quality perception. Respondent 3 asserted the effect of "word of mouth … in terms of the durability of their product", to be an encouragement to try local brands. In addition, she remarked: "but I wouldn't hold it at the same weight as a luxury brand from elsewhere", once again signifying the importance of symbolism (Jamal & Goode, 2001). This finding is in accordance with that of Shukla, (2011), that found information interpersonal influences to be the strongest, to shape consumer perceptions and intention.

4.5. Brand Image Influence: Improved Symbolism

4.5.1. Brand Internationalization & Global Recognition

The most prominent recurrent theme mentioned and confirmed during this, was the matter of local and global recognition. Majority of the respondents identified the international recognition to be associated with elevated symbolic value perception. Respondent 5 pointed out the fact that she is not a part of the UAE "local community", hence, not familiar with UAE brands so, "to [her], definitely an internationally known, an international image for brand would be very influential" in building a strong image and elevating the symbolic value of a luxury brand. In addition, respondent 8 stated that "If the brand is *well known*, and it does *go with the pricing*, as well as the *quality*, then yes", it will improve her symbolic value perception of the brand. Concluding from her statement and others, brand image particularly its global recognition to improve both their perceived utilitarian value and symbolic value perception, however not the economic value perception. This finding is supported by Steenkamp, et al. (2003), that validated effect of brand's internationality on overall perceived utilitarian (such as quality) and symbolic value through added prestige to the brand.

4.5.2. Celebrity Endorsement & Brand Story Telling

Many of respondents agreed upon the influence of celebrity endorsements locally and globally, which strengthens the brand image by assuring consumers of quality and symbolism. Respondent 5 mentioned: "I think people are … into trends and they fall easily into things that are introduced by [their] role models". Hence, celebrity endorsement contributes to brand image, consequently elevating consumer symbolic value perception (Khan & Lodhi, 2016). Moreover, the most significant aspect of a brand image was the brand's story entailing cultural identities, authentic idea or support for purposeful causes. Respondent 15 signified the importance of storytelling in creating a brand image, stating: "people are more sensitive to the story" and if the brand is fighting a "cause" such as sustainability, "I think psychologically talking, would make an impact and *oversee definitely any other aspects*". Thus, it is safe to say an authentic concept built around a cultural element, certain cause or a unique identity can strengthen the brand image through storytelling the ultimately elevates consumer perception of the brand decision and overrules possible negative COO effects (Huang & Guo, 2021).

4.6. Brand Image Influence: Value for Money

Even with elevated symbolic and utilitarian value perception, majority of the respondent were reluctant to pay a luxury price point for UAE luxury brands, due to lack of brand heritage. Many mentioned they would pay a premium price if the utilitarian (quality) and symbolic (self-expression), however unwilling to pay a similar price point as that of heritage brands such as Gucci and Louis Vuitton. As an example, respondent 6 clearly stated: "I've always considered luxury brands to be tied in with heritage…it's price sensitive, when it comes to homegrown brands". This, finding is supported by that of Chelminski & DeFanti (2018), emphasizing the substantial effect of brand's heritage upon willingness to pay a luxury price point, hence the economic value perception.

5. CONCLUSION

This research has endeavored to uncover consumer's overall luxury perception of UAE made luxury fashion products. To do so, the research has studied the effect of both UAE's country image and brand image on consumer perception of such local luxury products, through qualitative data collection method. Qualitative method was undertaken due to the novelty of the study and lack of prior research on this particular topic hence, such approach allowed to conduct in depth interviews to attain a rich data set to be reflected upon. UAE's country image was not found to have an overall positive effect on consumer perception of UAE made Luxury fashion, as it was associated with undesirable influence on each aspect of the overall luxury value. Lack of experience and fashion education (Lascu, Ahmed, Ahmed, & Min, 2020; Vijaranakorn & Shannon, 2017; Kalicharan, 2014) (utilitarian value aspect), lack of fashion equity and heritage (Jung, et al., 2014; Baldauf, et al., 2009) (symbolic and economic value aspect) were among the most prominent reasons behind consumer's low perception of UAE made luxury fashion. However, UAE's technological and economic development, investment, cultural assets and hardworking innovative designers, pose an optimistic future for the industry. On the other hand, positive brand image was found to have an uplifting influence on consumer perception of UAE made luxury fashion products in terms of symbolic and utilitarian value, yet not the economic value. Through quality assurance (Diamantopoulos, et al., 2011) internationalization (Steenkamp, et al., 2003) and promoting strong cultural (Jung, et al., 2014) and differentiation values (Qiu, et al., 2017; Porter, 1985), brand image can prevail in elevating consumer utilitarian and symbolic value perceptions.

5.1. Managerial Implication & Future Research

Findings of this study signifies the importance of brand image, particularly in case of UAE luxury brands. Even though, brand heritage is objectively difficult to obtain for brands in UAE in the coming years, managers can maneuver over cultural elements to build the cultural asset and identity meaning for consumers to elevate their perception (Wuestefeld, et al., 2012). Furthermore, creating a symbolic value by uniqueness in concept and particularly in design and dedicating marketing activities such as advertising campaigns as well as the strategic positioning to highlight brand's distinctiveness to elevate consumers' symbolic perceptions and economic value perception as a result (Qiu, et al., 2017). The advertising campaigns can further incorporate use of appropriate local and international celebrities, that promotes symbolic value of the brand as well as utilitarian value (Khan & Lodhi, 2016). Finally, governmental support can strengthen "national branding" through the knowledge of country image, to highlight the aspects of country image that has a positive effect on respective industries (Vijaranakorn & Shannon, 2017). Future research can validate the findings of this study further, by quantitative analysis method. This method allows for high participation to better represent the UAE population and diversity, while incorporating themes found relevant in this study. *Micro* country image based research, to highlight the country's image strength in certain luxury product categories (Vijaranakorn & Shannon, 2017) can be further explored.

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THE SIGNIFICANCE OF SOCIAL BENEFIT ORIENTATION IN MARKET ORIENTATION FOR THE REALISATION OF THE STRATEGIC MARKETING CONCEPT OF SUSTAINABILITY

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ABSTRACT

In order to succeed, a company must foster and continually upgrade an organisational culture centred on a marketing orientation where employees fully and systematically create superior value for the customers and other stakeholders in the exchange. To identify the level of the evolved market orientation and marketing paradigm, the authors of this paper designed a custom measuring scale based on Gunarathne's (2015) research. Primary data on the attitudes and opinions of relevant respondents, mainly marketing experts and experts actively pursuing a sustainable development policy, were collected for empirical research purposes. The survey sample comprised representatives of successful Croatian companies. In total, the authors received 112 fully completed questionnaires. The analysis showed that the impact of market orientation was present in the companies encompassed by the survey, which showed that the decisions in the area of interfunctional coordination, as the fundamental postulate of this construct, sufficiently contribute to both components of the strategic marketing concept of sustainability. Namely, the authors found that this area has a statistically significant impact on differentiation through sustainability and on sustainable marketing management. In case of the other two variables, "customer orientation" and "social benefit orientation", the authors identified a specific impact on the construct of market orientation, since customer orientation has a statistically significant impact through the component of differentiation through sustainability, but not on the component of sustainable marketing management. In case of the variable "social benefit orientation", the result is the opposite: it has a statistically justifiable impact on the component of sustainable marketing management, but not on the component of differentiation.

Keywords: *strategic marketing concept of sustainability, marketing orientation, sustainability marketing*

1. INTRODUCTION

Marketing theory and policy have embraced the concept of sustainable development, but its definition and practical application in marketing is still widely debated and studied (Peñaloza and Mish, 2011; Luchs et al, 2011; Raderbauer, 2011; Martin and Schouten, 2012; Wilkie and Moore, 2014, Epstein and Rejc Buhovac, 2014). The inclusion of the concept of sustainable development in marketing is also somewhat impeded by its complexity (Nidumolu et al, 2009). The connection between sustainable development and marketing is manifested in the recognition of the major trends impacting marketing threats and opportunities in the context of the supply of natural resources, which largely dictate the rate of consumption in contemporary economies worldwide. As the main driver of growth in the current market paradigm, marketing is the source of a number of environmental and social problems (Mish and Miller, 2014).

As a result, criticism is often levelled at marketing and its contribution to the deterioration of the natural balance and to unsustainable development in general (Peattie, 2001; Cohen and Winn, 2007; Peterson, 2013). However, given its responsibility, marketing is also in a position to make a positive contribution to a sustainable society by changing consumption patterns (Shafer and Crane, 2005). As an integral part of the society's problems, marketing is also an important part of their solutions (Mittelstaedt et al, 2014). The task of marketing is to encourage sustainable consumption patterns as a driver of social and environmental benefit, while also achieving excellence for the company, which customers perceive through the delivery of added value in connection with a product/service. Marketing impacts all aspects of value delivery to customers, and it can also influence customers' behaviours and attitudes through the external communication function. At the same time, a company has to be able to achieve its economic and financial targets. In fact, as the point where the society and the economy collide, marketing has an enormous potential for the management of societal changes (Jones et al, 2008). As the driver of societal changes in the context of sustainability, marketing is therefore defined as "marketing for sustainability". Marketing for sustainability has two primary roles. Firstly, marketing functions must have a beneficial impact on the prosperity of the society and on environmental balance. Secondly, global sustainability and competitiveness of economic operators may be achieved at the same time through market structure management (Martin and Schouten, 2012; Peñaloza and Mish, 2011). The role of marketing for sustainability is reflected in creating conditions for the offer of sustainable products and/or services that will satisfy the customers' needs while directly or indirectly greatly helping to improve their social and economic performance throughout their lifecycle, and increasing value for customers and other stakeholders. At the same time, naturally, it is also very important that the company achieves its economic targets (Belz and Pettie, 2010). Sustainable marketing, or marketing done sustainably, stands for everything an organisation does within its internal business process to make a beneficial impact on the environment and the society while achieving its own economic targets. Adequate development of the market orientation concept, comprising customer orientation, competition orientation, and social benefit orientation, while also strengthening interfunctional coordination, is the key aspect of the business process. In order to succeed, a company must foster and continually upgrade an organisational culture centred on a marketing orientation where employees fully and systematically create superior value for the customers and other stakeholders in the exchange. (Narver and Slater, 1990; Kohli and Jaworski, 1993). Continuous development of processes and products is also essential, along with the omnipresent innovation and corporate social responsibility, aiming to improve social and environmental living conditions. Sustainable marketing is a concept, a cultural value, and a process based on positive standards (Schouten and Martin, 2012).

2. METHODOLOGY

To identify the level of the evolved market orientation and marketing paradigm, the authors of this paper designed a custom measuring scale based on Gunarathne's (2015) template. Gunarathne proposed the NEWMKTOR measuring scale, which identifies additional actions for common good in addition to customer and competitor orientation, and interfunctional coordination. Gunarathne (2015) developed his new model for measuring market orientation, known as the NEWMKTOR, based on the MKTOR model. The author added social benefit to the existing MKTOR model, developed by Narver and Slater (1990), as a fourth component. The resulting model expands the existing model for measuring market orientation with a new perspective by including corporate social responsibility within the organisation, increasing social benefit beyond the level of the regular organisational targets of the company.

The original scale consists of 28 measures, grouped around four variables: customer orientation, competitor orientation, interfunctional coordination, and social benefit orientation. Survey participants were asked to rate their agreement with the statements provided on a 5-point Likert scale. Primary data on the attitudes and opinions of relevant respondents, mainly marketing experts and experts actively pursuing a sustainable development policy, were collected for empirical research purposes. The survey sample comprised representatives of successful Croatian companies. The survey included the largest 400 companies registered in Croatia in 2017, selected according to the following criteria: total income, export income, profit after tax, asset value, profit share in total revenue and total assets, share of total exports, income, and net profit margins generated in 2016 (Jerčinović, 2019). The list of companies was based on the data compiled by the Croatian Financial Agency. The authors chose this sample because, according to Vrdoljak-Raguž and Hazdovac (2014), larger companies are more prone to implementing sustainable development measures through socially responsible behaviour policies. Also, these companies are the drivers of all-important changes, and they set the standards for other, especially smaller market participants. The survey was carried out in the second half of 2018. The questionnaire was sent to 392 e-mail addresses from the list of companies. In response, the authors received 112 fully completed questionnaires.

3. RESULTS

The analysis of the descriptive results for the measures in the NEWMKTOR scale confirmed that a market orientation including extra actions aimed at common good and social benefit is an important business determinant for the survey participants in achieving their organisation's optimal targets. The following statements received the highest average scores: "We take customer complaints seriously" (4.00, SD 0.890), "We look for ways to offer more value to our customers" (4.11, SD 0.867), and "Our company treats our customers as our partners" (4.04, SD 0.938). In contrast, the statements that concerned awareness of competitor activities and the promotion of culture as a component of social action in the community received the relatively lowest scores. The authors analysed the metric characteristics, the dimensionality and the reliability of the measuring scale in question, because, according to Lončarić (2009), it is advisable to do so when a questionnaire is being translated into another language, or when an entirely new measuring scale is being developed. Using explorative factor analysis, the authors checked the dimensionality and a certain number of factors for further analysis, the Kaiser criterion, the varimax rotation, and the factor axes analysis. They calculated the Bartlett's Test of Sphericity (Table 1) based on the definition of the Kaiser-Meyer-Olkin coefficient.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.938
Bartlett's Test of Sphericity	Approx. Chi-Square	2,643,483
	Df	378,000
	Sig.	0.000

Table 1: KMO and Bartlett's Test after performing the exploratory factor analysis for the NWMKTOR measuring scale
(Source: Survey results)

The conclusion of the exploratory factor analysis was that eight measures did not belong to the desired construct. The final questionnaire, comprising 20 measures, was thus composed as a prerequisite to continue the analysis of the main components based on 20 manifest variables.
The authors then analysed the main components using the Kaiser criterion, and checked them using the Bartlett's Test of Sphericity, which confirmed that the sampled variables were within acceptable limits (Table 2).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.922
Bartlett's Test of Sphericity	Approx. Chi-Square	1,704,341
	Df	190,000
	Sig.	0.000

Table 2: KMO and Bartlett's Test in performing the analysis of the main components of the NEWMKTOR measuring scale
(Source: Survey results)

The analysis explained 69.84% of the total variance of the scale's results. The scale was extracted into three components, rejecting 11 measures due to the saturation (> 0.40) of several components.

Component	Characteristic root	Variance %	Cumulative %
Customer orientation	9.773	48.865	48.865
Social benefit orientation	3.097	15.487	64.352
Interfunctional coordination	1.098	5.492	69.844

Table 3: Extracted components and explanation of result variance
(Source: Survey results)

The achieved communalities of manifest variables are shown in Table 4.

Measures	Initial	Extraction
We think about social benefits as our commitment to the society	1.000	0.785
Our company takes environmental issues into consideration	1.000	0.791
We are focused on social and cultural issues in our community	1.000	0.747
We focus on corporate social responsibility when defining our business policies	1.000	0.737
We organise and give donations	1.000	0.668
We believe that corporate social responsibility is our obligation	1.000	0.655
Our company's functions are collectively aware of the importance of customer relations	1.000	0.666
Our company's functions make decisions affecting collective customer relations	1.000	0.780
The company's resources are often split between functions	1.000	0.774
We have knowledge of the customers' buying process	1.000	0.680
We look for ways to offer more value to our customers	1.000	0.809
We take customer complaints seriously	1.000	0.763
We collect information about our customers' needs	1.000	0.737
Our company treats our customers as our partners	1.000	0.748
We regularly measure customer satisfaction	1.000	0.756
We react to our competitors' activities very quickly	1.000	0.711
Our company's functions coordinate customer contacts with each other	1.000	0.576
We know why our customers go over to our competitors	1.000	0.552
We know which products and/or services our competitors offer to the customers	1.000	0.512

Table 4: Achieved communalities of NEWMKTOR scale manifest variables
(Source: Survey results)

A review of the pattern matrix after the analysis of the main components of the NEWMKTOR measuring scale showed that there are nine measures in the first component, “customer orientation”, which means that this component is highly saturated. The same applies to the second component, “social benefit orientation”, which has seven measures. In contrast, the third component, “interfunctional coordination”, has only three measures (Table 5).

Measures	Components		
	1.	2.	3.
We take customer complaints seriously	0.872	0.037	0.044
We look for ways to offer more value to our customers	0.867	0.141	0.194
We collect information about our customers’ needs	0.829	0.143	0.170
Our company treats our customers as our partners	0.797	0.223	0.252
We react to our competitors’ activities very quickly	0.774	0.185	0.279
We regularly measure customer satisfaction	0.769	0.330	0.238
Our company’s functions coordinate customer contacts with each other	0.682	0.217	0.253
We know why our customers go over to our competitors	0.655	0.178	0.303
We know which products/services our competitors offer to the customers	0.655	0.164	0.237
We think about social benefits as our commitment to the society	0.129	0.856	0.187
Our company takes environmental issues into consideration	0.232	0.844	0.161
We focus on corporate social responsibility when defining our business policies	0.155	0.834	0.129
We are focused on social and cultural issues in our community	0.149	0.833	0.175
We organise and give donations	0.147	0.798	0.094
We believe that corporate social responsibility is our obligation	0.129	0.781	0.170
Our company’s functions are collectively aware of the importance of customer relations	0.260	0.750	0.188
Our company’s functions make decisions affecting collective customer relations	0.339	0.147	0.802
The company’s resources are often split between functions	0.350	0.241	0.770
We have knowledge of the customers’ buying process	0.298	0.328	0.696

Table 5: Comparative analysis results for NEWMKTOR measuring scale (Source: Survey results)

The authors calculated the Cronbach’s alpha reliability coefficient (α) to determine the reliability of the identified components. For “customer orientation”, Cronbach’s alpha was α = 0.935, for “social benefit orientation”, it was α = 0.933, and for “interfunctional coordination”, it was α = 0.838. The measurements showed all tested components to be highly reliable, which means that they can be included in further analysis. To determine the impact of modernised market orientation on strategic marketing orientation for sustainability, that is, to determine which factor is the prerequisite for sustainability marketing in the companies encompassed by the survey, the authors performed multiple regression analyses, where “differentiation through sustainability” and “sustainable marketing management” were the dependent variables. Regression analysis was first used to examine the impact of independent variables “customer orientation”, “social benefit orientation” and “interfunctional coordination” on the dependent variable "differentiation through sustainability". To determine the initial relationship, that is, the strength of the correlation between the variables in the proposed model (dependent and independent variables), the authors calculated the correlation matrix to identify the independent variables with the greatest impact on the dependent variable. This means the variables whose correlation coefficients are approximately equal to or higher than 0.50. The Pearson correlation coefficient is shown in the table 6. A two-tailed test was also used to determine the significance of the correlation.

		SO	OP	OD	MK
Pearson Correlation	SO	1.000			
	OP	0.537*	1.000		
	DK	0.472*	0.970	1.000	
	MK	0.327	0.828	0.904	1.000

N 112 *Sig. = 0,000

Table 6: The matrix of correlation between the dependent variable "differentiation through sustainability" and the independent variables
(Source: Survey results)

The table of correlations show a statistically significant correlation between the independent variables "customer orientation" ($R = 0.537$; $p = 0.000$) and "social benefit orientation" ($R = 0.472$; $p = 0.000$) on the one hand and the dependent variable on the other. The correlation between the independent variable "interfunctional coordination" ($R = 0.327$; $p = 0.000$) and the dependent variable "differentiation through sustainability" is somewhat lower, but still statistically significant. To be able to carry out a complete regression analysis of the model, the authors first had to identify the indicators of representativeness of the regression of the full model. Determination coefficient R, or its adjusted version, is the most significant coefficient of representativeness for the evaluation of the regression model. Theoretically, the closer the determination coefficient is to one, the more representative the model (Table 7).

Pearson correlation coefficient R	Determination coefficient R^2kor	Adjusted determination coefficient	Estimated standard error	Change Statistics				
				R Square Change	F Change	df 1	df 2	Sig. F Change
0.580	0.336	0.318	0.65490	0.336	18.255	3	108	0.000

Table 7: Evaluation of representativeness of the regression model for the dependent variable "differentiation through sustainability"
(Source: Survey results)

The representativeness of the regression of the full model applies to all variables in the model combined. Table 18 indicates a medium-high correlation ($R = 0.580$). The determination coefficient is the sum of all individual contributions of each independent variable in the explanation of the variance of the dependent variable. In other words, it represents the percentage of explained variance of the independent variable. In this case, the authors used the adjusted determination coefficient R^2kor = 0.318, which means that the independent variables (3) explained 33% of the variance of the dependent variable. Even though the percentage of variance of the dependent variable explained by regression models should ideally be as high as possible, this value may be considered satisfactory, and the model representative (Mejovšek, 2003). The model is also statistically significant ($p = 0.000$).

Accordingly, the authors were able to define the final regression model, showing how – and how strongly – the independent variables impact differentiation through sustainability. Table 18 shows the following independent variables: “competitor orientation”, “social benefit orientation” and “interfunctional coordination”, with the corresponding non-standardized regression coefficients (B), which show the share of the independent variables in the explanation of the variance of the dependent variable. In addition to the correlation between the independent and dependent variables, the correlation between the independent variables is also taken into account. The higher the correlation R between the independent and dependent variables, the higher the B-weight, and the higher the correlation between independent variables, the lower the B-weight. In other words, the B-weight shows by how many points the forecasted or dependent variable will change or increase if the independent variable moves by one point. By analogy with non-standardized regression coefficients (B) in the regression model table, the ß weights or standardized regression coefficients are shown, expressed in standard deviation units, which allows their comparison so that the independent variable indeed contributes more to the explanation, unlike the B-weight (Table 8).

Model	Non-standardized regression coefficients		Standardized regression coefficients	T	sig.	Collinear statistics	
	B	Standard error	ß weight			Tolerance	VIF
Constant	1.474	0.423		3.480	0.001		
OP	1.459	0.472	1.126	3.089	0.003	0.046	21.649
DK	-0.538	0.651	-0.395	-,827	0.410	0.027	37.250
MK	-0.340	0.284	-0.249	-1.199	0.233	0.142	7.027

Table 8: Regression model coefficients for the dependent variable “differentiation through sustainability”
(Source: Survey results)

Table 8 indicates that the standardized regression coefficient for the independent variable “customer orientation” (OP) has a nonaligned value (ß = 1.126) due to the high correlation between the independent variables. The correlation analysis therefore identified a strong correlation between the independent variables, which points to a multicollinearity problem, that is to say, to the omission of one of the variables in question from further analyses. Given the character and the structure of the survey, the variable “competitor orientation” was omitted. In the next step, the authors re-evaluated the representativeness of the regression model for the dependent variable “differentiation through sustainability”, not including the variable “competitor orientation”. The results of the representativeness of the regression model for the dependent variable “differentiation through sustainability” point to the normality of the regression analysis that was performed out with one fewer variable (Table 9).

Model	Non-standardized regression coefficients		Standardized regression coefficients	t	sig.	Collinear statistics	
	B	Standard error	ß weight			Tolerance	VIF
Constant	1.460	0.422		3.456	0.001		
OP	1.098	0.181	0.848	6.069	0.000	0.314	3.187
MK	-0.514	0.191	-0.376	-2.691	0.001	0.314	3.187

Table 9: Regression model coefficients for the dependent variable “differentiation through sustainability”, not including the variable “competitor orientation”
(Source: Survey results)

Customer relations and elements of interfunctional coordination implemented within the company's general market orientation impact the differentiation process based on the elements of sustainability. Social benefit orientation does not have a major significance for differentiation through sustainability in the case at hand. The second phase of the regression analysis in this part of the analysis included an analysis of the impact of individual market orientation components, or known independent variables, on the dependent variable "sustainable marketing management" (See Table 10).

	OU	OP	DK	MK
Pearson Correlation OU	1.000			
OP	0.806	1.000		
DK	0.745	0.980	1.000	
MK	0.565	0.852	0.915	1.000

N = 112 *Sig. = 0,000

Table 10: Matrix of correlation between the dependent variable "sustainable marketing management" and the independent variables
(Source: Survey results)

The authors used the same procedures as for the dependent variable "differentiation through sustainability". The correlation analysis points to a high correlation between all independent variables ("customer orientation", "social benefit orientation" and "interfunctional coordination") and the dependent variable "sustainable marketing management". The evaluation of representativeness of the regression model for the dependent variable "sustainable marketing management" is shown in the table 11. The regression model with correlation coefficient R = 0.843 is indicative of a strong correlation. Since the adjusted determination coefficient R^2 kor = 0.702, independent variables (3) explain 70% of the variance of the dependent variable, and the model is statistically significant (p = 0.000).

Pearson correlation coefficient R	Determination coefficient R^2kor	Adjusted determination coefficient	Estimated standard error	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
0.843	0.710	0.702	0.44825	0.710	88.202	3	108	0.000

Table 11: Evaluation of representativeness of the regression model for the dependent variable "sustainable marketing management"
(Source: Survey results)

Regression model coefficients for the dependent variable "sustainable marketing management" (Table 12) indicated that the dependent variable "customer orientation" (OP) and the independent variable "social benefit orientation" (OD) have a statistically significant impact on sustainable marketing management in the companies included in the survey, while the variable "interfunctional coordination" (MK) does not contribute significantly to the explanation of the variance.

Table following on the next page

Model	Non-standardized regression coefficients		Standardized regression coefficients	t	sig.	Collinear statistics	
	B	Standard error	ß weight			Tolerance	VIF
Constant	0.001	0.290		0.005	0.006		
OP	2.245	0.429	1.642	5.236	0.000	0.016	61.205
DK	-0.901	0.588	-0.621	-1.532	0.000	0.027	36.646
MK	-0.403	0.232	-0.267	-1.741	0.005	0.114	8.760

Table 12: Regression model coefficients for the dependent variable "sustainable marketing management"
(Source: Survey results)

A multicollinearity problem was detected due to the high correlations between the dependent variables, observed in the matrix, the correlation between the independent variables and the dependent variable "sustainable marketing management", as well as the nonaligned value for the independent variable OP (ß = 1.642), which is evidently due to the high correlation problem. One of the problematic variables needed to be omitted to avoid this problem. Given the character and the objectives of the survey, the authors chose to omit the variable "competitor orientation" (Table 13). The analysis of the impact of market orientation, with elements of social benefit included, found that its individual components impact the realisation of the strategic marketing concept of sustainability. Such market orientation was found to have an effective impact on the differentiation deriving from the values of sustainability and sustainable marketing management.

Model	Non-standardized regression coefficients		Standardized regression coefficients	T	sig.	Collinear statistics	
	B	Standard error	ß weight			Tolerance	VIF
Constant	-0.061	0.323		-0.189	0.001		
DK	2.020	0.207	0.392	9.756	0.000	0.164	6.110
MK	-1.070	0.216	-0.708	-4.963	0.000	0.164	6.110

Table 13: Regression model coefficients for the dependent variable "sustainable market management", not including the independent variable "customer orientation"
(Source: Survey results)

4. CONCLUSION

The analysis showed that the impact of market orientation was present in the companies encompassed by the survey, which showed that the decisions in the area of interfunctional coordination, as the fundamental postulate of this construct, sufficiently contribute to both components of the strategic marketing concept of sustainability. Namely, the authors found that this area has a statistically significant impact on differentiation through sustainability and on sustainable marketing management. In case of the other two variables, "customer orientation" and "social benefit orientation", the authors identified a specific impact on the construct of market orientation, since customer orientation has a statistically significant impact through the component of differentiation through sustainability, but not on the component of sustainable marketing management. In case of the variable "social benefit orientation", the result is the opposite: it has a statistically justifiable impact on the component of sustainable marketing management, but not on the component of differentiation. The above points to the conclusion that the hypothesis according to which customer and competitor orientation, interfunctional coordination, and social benefit orientation are determining factors of the focus on strategic marketing orientation for sustainability can be partly confirmed, because there is no complete alignment of the impact of all independent variables on both components of market orientation encompassed by the survey.

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EXPLORING THE IMPACT OF ONLINE ADVERTISING ON STUDENTS' CONSUMER BEHAVIOUR

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ABSTRACT

Online marketing has become a necessity in today's technological world as the number of active Internet and digital media users is continuously growing. In the era of ICT, online marketing is considered one of the main tools that enable companies to reach a wide audience at lower costs. Various forms of online advertising are used for this purpose. The main aim of this study was to investigate the impact of online advertising on consumer behaviour. A survey was conducted on a sample of students from Josip Juraj Strossmayer University in Osijek. As members of the digital generation, they are bombarded with online advertisements and are often the target of marketing campaigns. According to the results, online ads generally did not attract the attention and interest of students to a greater extant. Only a few respondents reported always paying attention to them. The study also revealed that the twelve analysed forms of online advertising did not increase most students' purchase intention, which was confirmed by a one-sample sign test. However, not all forms of online advertising had the same impact on the students' consumer behaviour. Social media ads, as well as banner ads and targeted ads based on previous searches, were found to be more acceptable than other forms of online advertising. In contrast, pop-up and pop-under ads were the least likely to influence students' purchase intention. The findings of the present study support some previous research and contribute to a better understanding of the impact of online advertising on consumer behaviour.

Keywords: *online marketing, forms of online advertising, consumer behaviour, university students, Internet, ICT*

1. INTRODUCTION

In just a few decades, the rapid development of ICT has drastically changed every aspect of people's lives, as well as how society as a whole and the economy function. ICT has facilitated access to, processing, storage, exchange, and use of information, thus enabling new forms of relationships to be established between parties offering products and services and those requesting them. Technological progress and the widespread use of ICT have strongly impacted consumer behaviour. Traditional media such as newspapers, radio, and television are losing their audiences. The adoption of the new media is high among the younger generations; however, many older adults have embraced them too.

In such circumstances, advertisers are forced to rethink their strategies and adapt to the changes. As a result, digital advertising spending has soared over the past few years. If current trends continue, it is only a matter of time before digital advertising completely overshadows traditional forms of advertising. Online marketing, also called Internet marketing, is one of the terms used to describe marketing through new media. Various definitions of online marketing can be found in the literature. Kotler and Armstrong (2012) state that online marketing, as the fastest growing form of direct marketing, represents all the efforts made to market products and services and build customer relationships over the Internet. For Viglia (2014), online marketing is a marketing practice that uses the web to drive sales of products and services and increase brand awareness. Akhmadi and Pratolo (2021) see online marketing as the use of ICT in marketing, communication, delivery, and exchange activities with the aim of providing value to consumers, partners, and the community. Eley and Tilley (2009) define online marketing simply as promotional activities carried out via the Internet. However, such a definition is too narrow to be acceptable. According to Negi and Chaurasia (2021), online marketing is the process of maintaining a relationship with customers by enabling the exchange of information and ideas about products and services, which includes all marketing efforts using electronic devices and the Internet. The term is also used to denote a strategy that helps build a company's reputation on the Internet by using different tools and solutions (Kumar, 2020). Online marketing includes the planning, organisation, implementation, and control of all market-oriented activities with the help of devices that have access to the Internet (Kreutzer, 2022). Online advertising is an essential element of online marketing communication (Çakmak and Taşkın, 2020). Thus, the concept of online marketing is broader than the concept of online advertising (Simić, 2012). In this context, online advertising is perceived as a technique, tool, and strategy of online marketing (Bostanshirin, 2014; Dole, 2020; Caescu et al., 2021). Noruzi and Rashedi (2020) define online advertising as any form of advertising that uses the Internet to deliver promotional messages to consumers. Online advertising was described similarly by Tweni and Tlapana (2021). For them, online advertising is a form of marketing that involves using the Internet to send marketing messages and find new customers. Online advertising is also defined as an Internet-based process by which advertisers communicate and interact with consumers to position their brand and reduce the time required to make a purchase decision (Hanafizadeh et al., 2012). In addition, any content available on the Internet intended for informing consumers about products and services is considered online advertising (Schlosser, Shavitt, and Kanfer, 1999; Falcão and Isaías, 2020). Marketing experts point out that online advertising has numerous advantages. Based on a review of several studies (Jiang, Lu and Yang, 2011; Klapdor, 2013; Kresh et al, 2018; Nwokah and Ngirika, 2018; Kim and Moon, 2020; Khan and Rahman, 2021), the most important advantages of online advertising have been identified as follows. Online advertising is cheaper than traditional advertising, and it can reach a wider audience without time and space constraints. Compared to traditional advertising, online advertising is also more cost-effective. Online advertising tools enable the delivery of customised marketing messages to target groups. The results of online advertising are measurable and available to the advertiser in real time. In addition, online advertising is characterised by a wide dissemination range, strong interactivity, and flexibility. However, online advertising also has its drawbacks (Tavor, 2011; Barbu, Ponea and Bogdănoiu, 2019; Korenkova et al., 2020). Violation of Internet users' privacy is one of the major problems associated with online advertising. Many advertisers monitor users' activities on the Internet and send them unsolicited marketing messages. Furthermore, online advertisements are often intrusive and annoying, which can lead to potential customers ignoring them or even adopting a negative attitude towards the advertised product and service. One should also not forget that online ads cannot reach people, such as many elderly, who do not use the Internet. Finally, there are various security risks associated with online advertising.

2. A BRIEF OVERVIEW OF PREVIOUS RESEARCH

The development of ICT and its implementation in the field of marketing has received substantial interest among researchers and professionals. Numerous studies have addressed different aspects of online advertising. Although research on consumer attitudes towards online advertising and its influence on their behaviour can be found in diverse sources, the impression is that these issues are still not sufficiently discussed in academic literature. Taking the above into account, this chapter provides a brief overview of several studies that have examined how consumers perceive online advertising. Burns and Lutz (2008) investigated Americans' attitudes towards six online advertising formats using a sample of 1075 adults. Skyscraper ads were rated the most positively, followed by banners, large rectangles, floating ads, and interstitials, while pop-up ads received the least favourable evaluations. In their study, Wang and Sun (2010) examined consumer attitudes towards online advertising among respondents from China, the United States, and Romania. A total of 777 participants were included in the survey. It was found that Romanians had the most positive attitudes towards online advertising and clicked on ads more often. Americans, on the other hand, were more inclined towards purchasing products and services online. Davidavičienė (2012) surveyed 121 Lithuanians to explore the impact of online advertising on consumer behaviour. Of all respondents, 15% had a negative and 31% a positive attitude towards online advertising. There were also 14% of participants who reported not paying attention to online ads, while 40% said that their attitude depended on their interest in the advertised product and the features of the ad. Most of those surveyed perceived pop-up ads as the most annoying form of online advertising. The purpose of the study conducted by Le and Vo (2017) was to compare various dimensions of consumer attitudes towards different forms of display advertising. Based on the analysis of answers given by 200 Vietnamese university students, they found that they had a somewhat positive attitude towards banner ads with high informative value, and a negative attitude towards pop-up ads, which were found to be the most irritating. Adam and Baig (2017) investigated the behaviours and attitudes of Internet users towards web banners. Their sample consisted of 100 Pakistanis under the age of 50. According to the majority of respondents, web banners display irrelevant information, slow down the Internet, and are irritating and frustrating. The study by Youn and Kim (2019) aimed to determine how millennials perceive and react to newsfeed native advertising on Facebook. To this end, they interviewed 25 American college students. The authors concluded that despite some advantages, newsfeed native ads mostly caused a negative reaction. Two studies published in 2021 reached similar conclusions. Mbugua and Ndavi (2021) examined the effectiveness of pop-up ads as an advertising tool, using a sample of 100 Kenyan undergraduate students. They found that Internet users had a negative attitude towards pop-up ads due to their intrusive and disruptive nature. Moreover, pop-up ads may result in a poor user experience and have a detrimental effect on the brand. Özen and Dael (2021) conducted a survey of Internet users to examine their attitudes towards online advertising, in which 602 Turkish university students participated. The results showed that all types of banner ads analysed in the study disturbed students. Overall, online advertising was negatively perceived by the participants.

3. AIMS, SAMPLE, AND METHODS

Online marketing has become a key success factor for business in today's globalised and dynamic world. As people spend more and more time online, marketers are under pressure to find effective ways to capture their attention. To succeed, they must know how to use the potential of ICT. Digital technology has spurred the development of new marketing channels, and marketers are expected to use them to reach consumers and influence their behaviour.

According to Acatrinea (2015), several terms are used to describe how consumers are exposed to online advertising, such as online advertising formats, online advertising channels, online promotion techniques, types of online advertising, and online advertising forms. There is also no general agreement on what online advertising includes. However, it normally encompasses display advertising, search engine advertising, social media advertising, e-mail advertising, and video advertising (Ho and Hsieh, 2012; Hörnle et al., 2019, Mashchak and Dovhun, 2020; Respati and Irwansyah, 2020; Ho, 2022). All these forms of online advertising are heavily used to achieve marketing goals. Nonetheless, as research shows, excessive and intrusive online advertising may bring about the opposite effect to that which is intended. Therefore, the main aim of this study was to explore the impact of online advertising on consumer behaviour, thereby contributing to the existing knowledge about its effectiveness. The target group was university students. As members of the digital generation, they are proficient in ICT and highly engaged with digital media. In the online world, they are exposed to numerous advertisements and are often the target of marketing campaigns. Bearing the above in mind, the purpose of the study was to determine how often students pay attention to online ads. Moreover, the research aimed to examine how certain forms of online advertising influence their purchase intention. The study builds on the work of Dukić, Dukić, and Kozina (2020), and is part of a broader effort to investigate some of the changes brought about by the digital revolution. The survey was conducted among students of Josip Juraj Strossmayer University in Osijek who were invited to participate via e-mail and social networks. Data collection was supported by the Centre for Digital Ethics, Faculty of Humanities and Social Sciences in Osijek. A self-administered online questionnaire was used to collect data from students, yielding a total of 504 responses suitable for analysis. Students from all university faculties and departments participated in the survey. The sample consisted of 310 (61.5%) women and 194 (38.5%) men. The mean age of the respondents was 21.9 years, with a standard deviation of 2.77 years. Their median age was 22 years, with an interquartile range of 3 years. The youngest student was 18 and the oldest was 47. There were 455 (90.3%) full-time students and 49 (9.7%) part-time students. Of all participants, 256 (52.6%) were enrolled in undergraduate studies, 163 (32.3%) were enrolled in graduate studies, and 76 (15,1%) were enrolled in integrated study programmes. Descriptive statistics were used to describe the sample and summarise responses to items on the questionnaire. Since the data were not symmetrically distributed, a one-sample sign test was applied to test whether online advertising has a negative impact on students' consumer behaviour. The significance level was set at $p < 0.05$.

4. RESULTS

The respondents indicated on a five-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always) how often online advertisements attract their attention and interest. Most participants (38.7%) responded that they rarely pay attention to online ads, and 33.5% said they never do. Online ads sometimes captured attention of 20.4% of the students. There were also 6.7% of participants who stated that online ads often pique their interest. Only 0.6% of those surveyed claimed that they always react to online ads. The mean response was 2.02 and the median 2, indicating that online advertisements, in general, rarely influence the thoughts and actions of students. The standard deviation of the responses to this item was 0.93, while the interquartile range was 2. In order to explore how certain forms of online advertising influence their consumer behaviour, the participants were asked to rank their agreement with twelve statements on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree). The summary statistics of students' responses are provided in Table 1.

Statement	**Mean**	**Median**	**Standard deviation**	**Interquartile range**
Banner ads increase my purchase intention	2.41	2.00	1.18	2.00
Floating ads increase my purchase intention	1.60	1.00	0.92	1.00
Expanding ads increase my purchase intention	1.89	1.00	1.12	2.00
Pop-up ads increase my purchase intention	1.44	1.00	0.88	1.00
Pop-under ads increase my purchase intention	1.46	1.00	0.85	1.00
Video ads increase my purchase intention	1.94	2.00	1.07	2.00
Wallpaper ads increase my purchase intention	2.25	2.00	1.20	2.00
Background videos increase my purchase intention	1.75	1.00	0.97	1.00
Pre-roll video ads increase my purchase intention	1.81	1.00	1.08	1.00
Social media ads increase my purchase intention	2.58	3.00	1.24	3.00
E-mail ads increase my purchase intention	2.12	2.00	1.16	2.00
Targeted ads based on previous searches increase my purchase intention	2.36	2.00	1.25	2.00

Table 1: Descriptive statistics of survey items regarding the impact of online advertising on participants' purchase intention

Overall, the means and medians indicate that online advertising mostly did not affect consumer behaviour of students. All means were less than 3 (a neutral response on the scale). Respondents were least likely to agree that pop-up and pop-under ads increase their purchase intention. More precisely, they had the highest level of disagreement with the statements that referred to these two forms of online advertising. It should also be noted that these variables were characterised by the smallest standard deviation. Somewhat higher mean values were found for items concerning the influence of floating ads, background videos, pre-roll video ads, and expanding ads on students' purchase intention. Anyway, the median was 1 for all the above-mentioned forms of online advertising. There were five items for which the means ranged from 1.94 to 2.41, while the median rating was 2. From this it follows that the surveyed students also disagreed, but to a lesser extent, that video ads, e-mail ads, wallpaper ads, targeted ads based on previous searches, and banner ads attract their attention and interest. According to both the mean and median, social media ads were most likely to influence students' purchase intention. It was the only item for which the median rating was 3. A standard deviation of 1.24 and an interquartile range of 3 suggested that there was high variability in students' attitudes towards social media advertising. Participants' responses are also summarised as percentages in Table 2. Students who disagreed or strongly disagreed were grouped together, respondents who reported a neutral response were placed in a second group, and those who agreed or strongly agreed formed a third group. The last column of Table 2 shows the p-values of the one-sample sign test. This test was used in the analysis to test the null hypothesis that the median response was equal 3 against the alternative hypothesis that the median response was less than 3.

Statement	**Strongly disagree / Disagree (%)**	**Neither agree or disagree (%)**	**Agree / Strongly agree (%)**	**One-sample sign test**
Banner ads increase my purchase intention	55.8	22.2	22.0	0.000*
Floating ads increase my purchase intention	86.7	8.1	5.2	0.000*
Expanding ads increase my purchase intention	74.6	14.7	10.7	0.000*
Pop-up ads increase my purchase intention	88.9	7.1	4.0	0.000*
Pop-under ads increase my purchase intention	88.1	8.3	3.6	0.000*
Video ads increase my purchase intention	72.0	17.7	10.3	0.000*
Wallpaper ads increase my purchase intention	60.1	22.8	17.1	0.000*
Background videos increase my purchase intention	80.2	14.1	5.8	0.000*
Pre-roll video ads increase my purchase intention	76.2	13.9	9.9	0.000*
Social media ads increase my purchase intention	49.4	24.0	26.6	0.000*
E-mail ads increase my purchase intention	64.5	22.2	13.3	0.000*
Targeted ads based on previous searches increase my purchase intention	54.8	25.8	19.4	0.000*
* Statistically significant at $p < 0.05$				

Table 2: Percentage responses to statements regarding the impact of online advertising on participants' purchase intention and one-sample signed tests p-values

There was only one statement with which more than half of the surveyed students agreed or were undecided. Just slightly less than 50% of all participants disagreed that social media ads increase their purchase intention. On the other side, only 26.6% of respondents stated that social media ads prompted them to consider a product or service. For all the other items the percentage of those who disagreed ranged from 54.8% to 88.9%. Overall, there were relatively few students who said they were affected by online advertising. As already indicated by the measures of central tendency, participants overwhelmingly disagreed that pop-up and pop-under ads influenced their consumer behaviour. Therefore, the findings suggest that social media ads were the most preferred form of online advertising, while pop-up and pop-under ads were the least popular, which is in line with some previous studies. According to the one-sample sign test, in all cases the null-hypothesis should be rejected. This implies that all median responses were less than 3. It can be concluded that at least half of the students were convinced that online advertising did not influence their consumer behaviour.

5. CONCLUSION

Online marketing has profoundly altered the way products and services are advertised and marketed. It has quickly become one of the main tools companies use to attract new and retain existing customers, who increasingly rely on the Internet and digital media. In today's technological world, online marketing enables companies to reach their target audience more effectively, and customers to play a more active role in this process.

Due to the rapid advancement of ICT and changes in consumer behaviour, online marketing strategies must be continuously reviewed and adapted. The dynamic nature of online marketing is also reflected in the ever-increasing number of new platforms and channels, which represents an additional challenge for marketers. They must understand and promptly respond to changes in the marketing environment to meet consumer expectations and needs. This is achieved through market research. Based on the obtained results, marketing campaigns are designed and implemented. They will not be successful unless all factors that can influence consumer behaviour are taken into account. Online marketing is rapidly evolving. Harnessing its enormous potential requires specialist knowledge. It is certainly not enough to just flood the Internet with ads and hope that they will attract the attention of consumers. Quite the opposite, an aggressive marketing campaign of that type can cause a negative reaction from those it targeted. With this in mind, the present study sought to determine how online advertising affects the consumer behaviour of Croatian university students. The results indicate that most of them rarely or never pay attention to online ads. The study also showed that the twelve analysed forms of online advertising did not increase the purchase intention of most students. However, some forms of online advertising, such as social media ads, banner ads, and targeted ads based on previous searches, could be considered more effective than others. Pop-up and pop-under ads were the least likely to influence students' purchase intention. It is obvious that the students found these two forms of online advertising the most annoying and intrusive. These findings support some previous research and contribute to the current body of literature on the impact of online advertising on consumer behaviour.

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A REPORT ON THE INSIGHTS ON AUDIT QUALITY TOPIC

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ABSTRACT

This paper provides theoretical background and literature review on the audit quality (AQ), dealing with the questions of AQ definition and measurement, and whether Big 4 auditors provide higher AQ than non-Big 4 auditors. Accounting standards require a high-quality financial reporting system to provide decision-useful information that is relevant, and faithfully represents underlying economic reality of the firm's activities and its financial condition. Both academics and practitioners agree that an essential feature of the financial reporting process is financial reporting quality (FRQ), but still there is no consensus on its definition and meaning. FRQ is commonly described as a function of AQ, the quality of the firm's financial reporting system which maps its underlying economics into financial reports, and its innate characteristics which determine its underlying economics. However, there is also no consensus on definition and measurement of AQ because the amount of assurance provided by auditors is unobservable. The contribution of this paper is the review of the most relevant AQ measures and discussion on their advantages and disadvantages. Although most of the previous research deals with the output-based proxies on the auditor supply side, recently, the focus has turned to input-based proxies on the client demand side, such as audit fees and auditor size. Thus, this paper additionally deals with homogeneity of audit quality across audit firms, i.e., reconsidering whether large audit firms deliver higher audit quality, as signalled by their reputation and by the "deep-pockets" hypothesis. However, the arguments why smaller audit firms could provide comparable audit quality will be debated, and strengths and weaknesses when engaging Big N or non-big N auditors will be listed.

Keywords: *audit quality, Big N auditor, financial reporting quality*

1. INTRODUCTION

The importance of financial reporting quality is well acknowledged by academics, standard setters, and market regulators striving to develop appropriate accounting standards and corporate governance framework. According to IASB (2018), a high-quality financial reporting system should provide useful information to capital providers and other stakeholders, which is relevant and faithfully represents the underlying economic reality of the company in making investment, credit, and similar resource-allocation decisions. The crucial element of the financial reporting process is the financial reporting quality (FRQ), but the problem is that there is still no consensus on its definition and meaning. FRQ is commonly described as a function of audit quality (AQ), the quality of the firm's financial reporting system which maps its

underlying economics into financial reports, and its innate characteristics which determine its underlying economics. The additional difficulty is no consensus on the definition and measurement of AQ because the amount of assurance provided by auditors is unobservable.
Although the FRQ topic is always actual, it becomes especially relevant when corporate scandals, like the Agrokor Group scandal in Croatia, occur. In 2015, with nearly 60,000 employees and sales revenue of €6.5 bn, Deloitte (2016) ranked the Agrokor Group in the eleventh place of largest overall company in Central Europe according to its' CE TOP 500 ranking. By the end of 2016, after the scandal, a financial audit of Agrokor undertaken by PWC and commissioned by the extraordinary administration revealed different accounting irregularities that have vastly overstated Agrokor's financial results as reported in the Consolidated Annual Report of Agrokor Group for 2016[1]. In the first part, the paper reviews the most relevant AQ measures, discussing the auditor size proxy as a commonly used input-based measure on the client demand side. Next, after describing the single-country setting and its specificities, an extensive review of the relevant previous research in Croatia is presented. The paper ends with concluding remarks.

2. AUDIT QUALITY MEASUREMENT

The AQ is the most commonly defined as the joint probability that an existing material error is detected and reported by an auditor (DeAngelo, 1981). The problem for empirical research is that AQ and FRQ are often inseparable in terms of observable financial reporting outcomes because researchers are limited to proxy both variables with quality measures based on audited financial statements only. However, according to Gaynor et al. (2016), FRQ and AQ are distinct constructs, and research can provide more significant insights into each if it recognizes the distinctions between them. In principle, an audit is supposed to improve FRQ. However, it is unclear which earnings attributes are considered by auditors as an indication of high FRQ. In his recent statement, International Federation of Accountants (IFAC) CEO Kevin Dancey emphasized that high-quality audits are the backbone of the global financial system and called to "collect, analyze, and publish more and better data – both aggregate and granular –on audit quality with the goal of enhancing transparency and promoting higher audit quality" (IFAC, 2020). While it is likely that low pre-audit FRQ will remain low if AQ is not sufficiently high, it is not likely that high FRQ will deteriorate if AQ is low. The reason is that auditors probably will not make adjustments to financial statements if they are not materially misstated in order to downgrade the quality of fairly presented financial statements, even if AQ is low. On the other hand, if AQ is low and pre-audit FRQ is low due to earnings management, audit adjustments will not improve FRQ. Moreover, the risk of giving a false positive opinion on audited financial statements in such a situation increases. Nowadays, the use of terms AQ and FRQ has been extended broadly, and continual attempts at refining the analyses, usually revealing considerable inventiveness and more sophisticated methodology, characterize these researches. In their overview of AQ indicators, FEE (2016) classifies measures as (1) mandatory, rules-based, or more flexible, principles-based; (2) qualitative or quantitative; and (3) whether their reporting is made public - meaning that all the key stakeholders may assess them, or kept private for audit committee use only. However, researchers generally classified AQ proxies as input-based or output-based measures. Output-based attributes focus on the supply-side factors and measure the level of audit quality of the audit process' outputs. On the other hand, input-based attributes analyze the effects of demand-side factors, i.e., from the client side, who must choose AQ based on observable inputs. An extensive overview of AQ measurement proxies can be found in the work of DeFond and Zhang (2014), Lennox et al. (2016), and Rajgopal et al. (2021).

[1] For more details on the type and amounts of accounting misstatements, see: https://www.agrokor.hr/en/news/audit-findings-for-fy-2016-consolidated-group-and-agrokor-d-d/

In their papers, those authors provide a framework for choosing adequate proxies and how to interpret them. However, DeFond and Zhang (2014) conclude that no single measure can not reflect the complete picture of AQ and recommend that researchers use multiple proxies from different categories to take advantage of their strengths and attenuate their weaknesses, if possible. Furthermore, it should be noticed that some AQ measures like accrual quality (total accruals) or benchmark beating (small profits) can be commonly found in literature dealing with FRQ. The objective evaluation of AQ is further complicated by the need to understand the context – i.e., the perspective from which audit quality is assessed. Classification and most relevant AQ proxies are presented in the picture below.

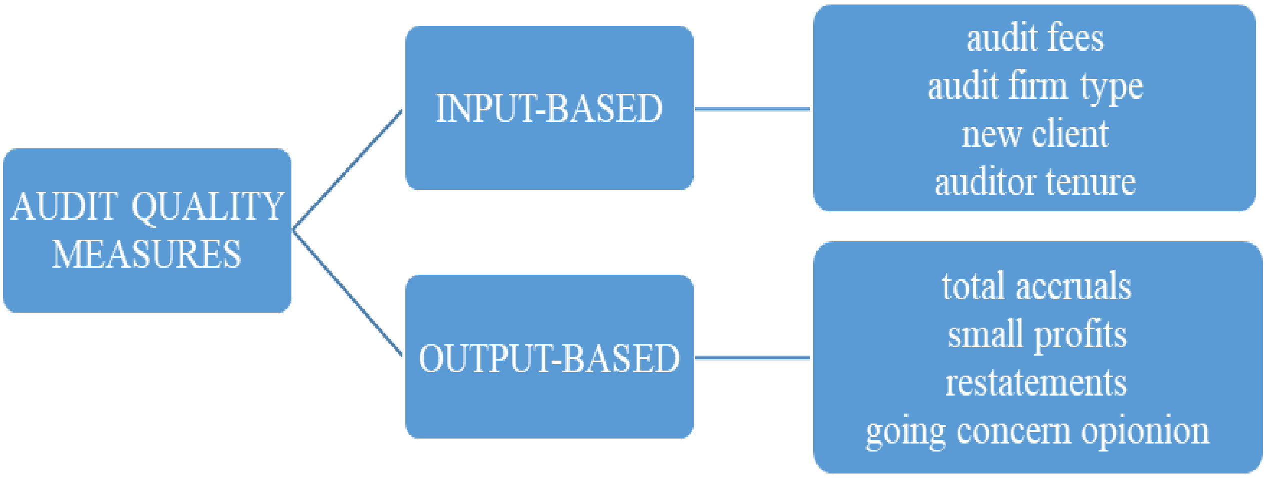

Figure 1: Classification of AQ proxies
(Source: Author's adoption according to DeFond and Zhang (2014), Lennox et al.(2016), and Rajgopal et al. (2021))

Although most of the previous research deals with the output-based proxies on the auditor supply side, recently, the focus has turned to the client demand side and input-based proxies, such as audit fees and auditor size. However, the direction of the auditor size variable's influence on AQ remains a controversial issue. Auditor size proxy is commonly defined as a dichotomous variable of Big N and non-Big N auditors, and most of the literature on this topic suggests that Big N audit firms provide higher AQ than non-Big N auditors. This Big N effect is usually explained by the reputation hypothesis and the "deep-pockets" hypothesis. DeAngelo (1981) argues that a single client is not so important for large audit firms, while if they misreport for that single client, they can lose their reputation and entire clientele. Moreover, large audit firms are incentivized to lower litigation risk and protect their reputation because of their heavy spending on building their brand names and their "deep pockets" (Simunic & Stein, 1987). The recent findings of Lennox and Lee (2020) offer an alternative explanation that the Big N auditor's clients are less likely to misreport and, consequently, are less likely to be sued. In their work, they examined the frequency of lawsuits against audit firms on a large sample of accounting lawsuits that allege financial reporting failures. Results show that Big N auditors are significantly less likely to be sued than non–Big N auditors, but the payouts from auditors are significantly larger when the auditor is a Big N firm rather than a non–Big N firm. On the other hand, when clients are sued, the payouts are smaller in the presence of a Big N auditor. Nevertheless, Francis (2004) points to the troubling aspect of this line of research. An alternative explanation may be that companies with high FRQ are more likely to select Big N auditors.

Thus, it is not that high AQ improves the quality of clients' financial statements; rather, it may simply be that companies with high-quality financial statements select high-quality auditors. On the contrary, there are also some arguments why smaller audit firms could provide comparable AQ. According to Lawrence et al. (2011), both types of auditors are held to the same regulatory framework and professional standards, so the level of AQ should be comparable. Besides, non-Big N auditors are usually city specialists or industry specialists and have superior knowledge of the local markets and better relations with their clients, enabling them to detect irregularities better and improve AQ (Rajgopal et al., 2021). Also, the research should control for clients' differences between Big N and non-Big N auditors. For example, Lawrence et al. (2011) findings suggest that differences in audit quality proxies between Big-4 and non-Big 4 auditors largely reflect client characteristics, especially client size. Despite these results, Lawrence et al. (2011) emphasized that their study has not resolved the question of the Big N effect, although they encourage other researchers to explore alternative methodologies that separate client characteristics from audit-quality effects. DeFond et al. (2017) stated that the absence of a Big N effect would overturn a large body of the literature and question the basic understanding of the fundamental drivers of audit quality.

3. LITERATURE REVIEW ON CROATIAN COUNTRY-SPECIFIC RESEARCH

A significant number of research studies dealing with different aspects of AQ can be found in literature. However, given the single-country setting and its specificities, observed results may be country-specific driven by the differences in the measurement of variables and methodological approach. Aljinović Barać and Bilić (2021) describe Croatia as a macro-based accounting system with an underdeveloped capital market, and point out that FRQ and information disclosure practices of these countries differ in comparison to capital market-oriented economies. They explain it by the influence of various economic, social, and political factors, like the legal system, stage of economic growth and development, ownership, activities of enterprises, etc. Thus, previous relevant research on AQ in Croatia is presented in more detail. The beginnings of the auditing profession in Croatia date to early 1990s, as a result of communism's fall and transition from a centrally-planned to an open market economy, along with the emergency of the capital market. The main drivers of the development of AQ were the requirements to align regulation with EU acquis communautaire to join the EU in 2013, and oversight of the statutory audit. However, the litigation risk against the auditors that may impact both FRQ and AQ is relatively low. One of the pioneering works of Vuko (2010) analyzed the audit market structure in Croatia to find out whether mergers and dissolutions in the audit markets have raised the level of concentration, thereby leading to reduced competition, and found that the audit market in Croatia is moderately concentrated. Sever Mališ and Brozović (2015) findings reveal that such a trend continues, so the audit market for listed companies is moderate to highly concentrated, with a decrease in 2013 compared to 2008. In addition, the authors identify significant and positive relations between audit firm type and client size, which confirms that larger companies tend to choose Big N auditors. Bilić (2016) examined the relation between AQ and FRQ, using the voluntary disclosure ratio to measure FRQ and audit firm type to approximate AQ. Results show that Big N auditor clients have better FRQ as they voluntarily disclose more information in annual report than non-Big N auditor clients. To the extension of this research, Aljinović Barać and Bilić (2021) determined the level of FRQ in listed companies in Croatia and identified company characteristics that affect it. Authors apply the M5 algorithm to identify the factors that influence the FRQ and find differences depending on the type of auditor. Aljinović Barać et al. (2011) investigated the association between companies' characteristics and their auditor choice decision to determine whether companies with better financial performance select auditors of higher quality, as indicated by their reputation.

Namely, a multinomial logistic regression is applied to test this association and the obtained results indicate that highly profitable companies owned by foreign investors with a low level of financial leverage and a high level of total accruals are more likely to select large audit firms. Contrary, small, non-profitable, highly leveraged companies owned by a government or private domestic entities/individuals are more likely to select small audit firms. Finally, it is important to stress that a significant limitation in researching this topic in Croatia is the relatively shallow and illiquid capital market. Namely, regulated market of the Zagreb stock exchange (ZSE) consist of three market segments: Prime, Official and Regular market. Initial listing requirements and ongoing obligations are more extensive for companies listed on the Official and the Prime Market than on the Regular market. The essential problem is that, by the end of 2020, 72% or 66 companies are listed on the Regular market, twenty companies are listed on the Official Market, and six companies only are listed on the Prime Market (OECD, 2021). At the same time, the crucial advantage for research on the Croatian institutional framework is the legal requirement for capital market issuers to report both unaudited and audited annual financial reports publicly. As Aljinovic Barac et al. (2017) noticed, financial reporting transparency in Croatia has increased significantly since 2008 when the new Capital Market Act came into force, and the publicly available Register of Annual Financial Reports was established. According to article 468 of the Capital Market Act (2018), the issuer of shares who has its registered office in the Republic of Croatia and whose shares are admitted to a regulated market should publish its quarterly financial report for the 4th quarter as soon as possible, but at the latest within sixty days. Additionally, ZSE requires issuers to make their audited annual financial statements public at the latest four months after the end of each financial year. Therefore, unaudited and audited annual financial statements for each company may be paired and compared.

4. CONCLUSION

This paper provides theoretical background and literature review on the AQ, dealing with the questions of AQ definition and measurement and whether Big N auditors provide higher AQ than non-Big N auditors. By giving the example of Croatia's single-country setting and its specificities, the authors explain why observed results may be country-specific, driven by the differences in the measurement of variables and methodological approach. Also, an extensive review of the most influential research and previous relevant research in Croatia is presented. Following recent trends, authors focus on auditor size as an input-based proxy of AQ. They reconsider whether large audit firms deliver higher audit quality, as signaled by their reputation and the "deep-pockets" hypothesis, and whether smaller audit firms can provide comparable audit quality to big ones. Finally, it can be concluded that AQ remains controversial construct both to define and measure because the amount of assurance provided by auditors is unobservable. Researchers are continuously dealing with the questions of what audit quality means, how it could be defined and how it could be measured. Nevertheless, this issue should be emphasized among all relevant stakeholders, especially regulators, oversight bodies, professional bodies, and audit firms. Even though it is hard to find a common approach to measuring AQ, relevant bodies worldwide should unite efforts and construct a unique measure of AQ acceptable to all of them. Last but not least problem for empirical research is the inseparability of AQ and FRQ in terms of observable financial reporting outcomes, so it is crucial to disentangle the effect of AQ on FRQ.

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THE PASS-THROUGH OF GLOBAL OIL PRICES TO CONSUMER PRICE INDEX: A PANEL DATA ANALYSIS

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ABSTRACT

The acceleration in worldwide oil prices due to the Ukrainian-Russian war delivered positive fiscal balances to oil-rich countries, particularly GCC states. Nevertheless, the positive current account balances did not hold these nations immune to inflation. The Russian war and the economic sanctions have triggered a sharp increase in the oil and commodity prices globally. According to the IMF, the Brent crude rose to a seven- year high after the Russian invasion surging to more than $130 per barrel. After years of deflation or low inflation in the GCC region, the inflation in the GCC rose to its highest level since six years. This begs the question to what extent does the fluctuations in global oil prices caused by the global conditions can pass-through to consumer price index. The objective of the paper is to estimate the pass-through effect of global oil prices to domestic inflation in the UAE, as the UAE follows a market mechanism in the pricing of petroleum products. To answer this question, we develop a panel dataset and adopted panel data econometric techniques. Our early findings suggest the pass-through effect from oil market to inflation is quite small.
Keywords: *Panel data analysis, UAE, inflation, oil prices*

1. INTRODUCTION

Headline inflation is inflation-related to all the economy's commodities, goods, and services. It refers to the change in value of all goods in the basket. Since the prices of fuel and food items tend to fluctuate and create 'noise' in inflation computation, it is often considered as a rather volatile measure of inflation. In more developed countries; fuel and food account for 10-15 percent of the household consumption basket and in developing countries it may reach up to 30-40 percent (IMF, 2021). Since the beginning of 2021, headline consumer price index (CPI) inflation has increased in advanced and emerging market economies alike, driven by firming demand, input shortages, and rapidly rising commodity prices. Despite large uncertainty about the measurement of aggregate supply gaps driven by the pandemic, a consistent relationship prevails between economic recession and inflation. At the wake of the health crisis in 2020, long-term inflation expectations remained relatively anchored, up until the commencement of the Russian-Ukrainian war in February of 2022. Looking ahead, headline inflation is projected to peak in the final months of 2022, for both advanced economies and emerging markets country groups, and with risks tilted uphill (IMF, 2022). While core inflation—the change in the prices of goods and services excluding food and energy—has risen less than headline rates, it has also increased, unlike otherwise expected. These developments took place despite substantial policy support initiated by numerous governments to recover from the deep contraction of 2020. From a macroeconomic perspective, a sustained rise in inflation in advanced economies leading to an unanticipated withdrawal of monetary adjustments has its negative toll on market dynamics. Emerging markets and developing economies on the other hand would be especially affected from the resulting spillover effects through capital outflows and exchange rate depreciations; as seen in many countries with free-float exchange rate systems and high import-dependency.

In an open economy, optimal monetary policy depends on the accurate prediction of domestic inflation that requires consideration of international shocks. Since oil is a basic raw material at any production levels and its price is determined in global markets, changes in oil prices constitute a big portion of such international shocks (Chen, 2009) & (Nusair, 2019). Accordingly, policy makers are interested in measuring the effects of an oil price shock on inflation, which can be achieved by estimating the oil price pass through into consumer prices. The effect of oil prices on inflation ultimately depends on a country's stance with respect to oil-production and dependency. For example; countries with substantial oil-dependency witness spikes in domestic prices due to such reliance as export production costs surge; manifesting an indirect impact on inflation. As for low oil-dependent countries; oil prices tend to have a more direct impact on domestic inflation. With respect to Emerging Markets, studies have shown how a rise in oil prices projects an inflationary effect as it transcends to production capacities that fall short due to cost hikes. Hence, negative economic growth trajectories become inevitable due to inflationary figures and future speculations (Hijazine & Alassaf, 2022). As oil price fluctuations affect consumer prices through direct and indirect channels; gasoline retail prices emerge as the direct channel. Because it is the form of oil that is consumed the most as a final product by consumers, developments in gasoline prices are noticeable to consumers as suggested by studies such as by Binder (2018) and Geiger and Scharler (2019). The indirect channel works through prices of products other than gasoline in the consumption basket, since oil is used in the production and/or transportation of almost all products (Meyler, 2009). Accordingly, oil price pass-through into gasoline prices represents the direct channel, while oil price pass-through into non-gasoline prices represents the indirect channel, both subject to the corresponding expenditure weights in the consumption basket. Both channels affect household incomes; rendering policy responses necessary but with careful assessment of fiscal and welfare trade-offs. Appropriate policy responses will need to consider country-specific circumstances, but some general considerations apply to all. The strength of Social Safety Nets (SSNs) should be a key consideration in developing policy responses. Strong SSNs can increase households' resilience to the shock, protecting them from falling (deeper) into poverty. Countries with strong SSNs should be able to protect poor and vulnerable households, while those with weaker SSNs would typically face difficulties in reaching vulnerable households in a timely manner. Other considerations include the availability of fiscal space, and threats to food and energy insecurity. Ultimately; the pass-through of international prices into domestic ones has been widely considered by many countries; emerging ones particularly in the Gulf Region; as in the case of the United Arab Emirates. Such pass-through does not come without a compromise. As a matter of fact; the ability of a country to smoothly implement a pass-through strategy depends greatly on its capacity to protect its most vulnerable social segments from supply shocks. Furthermore; in the case of prevailing subsidies (whether for food or energy alike); the incremental pass-through of international prices to domestic local ones should be carefully orchestrated based on the difference between the two; and robustness of fiscal space. Furthermore; price elasticity of demand for such product-groups acts as signaling instrument for policy-makers as it determines the route to be taken in managing such price-changes.

2. DATA AND METHOD

The United Arab Emirates (UAE) consists of seven emirates and has the second largest economy in the Arab World. Together, Abu Dhabi and Dubai account for 85% of the UAE GDP. Each of them has its own statistical agency that monitors inflation on a monthly basis. To evaluate the effect of oil prices on domestic inflation in Dubai and Abu Dhabi and to capture the city fixed effect, we rely on fixed effect model that allows to for eliminating the unobserved city effect.

These might include factors affecting inflation that do not change over time and different methods in capturing price inflation. Monthly data on Consumer Price Index (CPI) are collected from Dubai Statistics Center and Statistics Center Abu Dhabi covering the period from January 2016 to December 2021. The following fixed effect estimation model has been used to estimate the pass-through effect:

$$\Delta \log(CPI_{it}) = \beta_0 + \beta_1 \Delta \log(Brent_{t-1}) + \beta_2 \Delta NEER_{t-1} + \beta_3 \Delta interest_{t-1} + \beta_4\, VAT + \beta_5\, Covid + \beta_5\, Emirate_i + \beta_6\, \Delta FAO_{t-1} + month\_dummies + u_{it} \quad (1)$$

Our dependent variable is the first difference in the logs of CPI during month t in Emirate i, which is equivalent to the monthly percentage change in CPI or month-to-month inflation. Our key independent variable is the lagged inflation (month over month) in Crude Brent price at time t-1. We control for the change in the nominal effective exchange rate (NEER), as the NEER increases the prices of imported goods and services may decrease. Data on the NEER are compiled from the Bank of International Settlements (BIS). We control for the US interest rate (lagged), as the UAE currency is pegged to the dollar and the UAE central bank closely follows the Fed. We expect a negative association between the interest rate and price inflation. In 2018, the UAE introduced 5% value add tax (VAT) and to account for the VAT effect on CPI, we add a dummy variable equals one in January 2018 and zero otherwise. Additionally, we add a dummy variable to control for the COVID-19 lockdown and the strict restrictions period. To control for the city fixed effect, we add the variable Emirate equals one in the case of Dubai and equals two for Abu Dhabi. The variable FAO refers to the Food and Agriculture Organization price index that measures the monthly changes in international prices of a basket of food commodities. β_6 is expected to carry a positive sign reflecting a positive relation between international food prices and domestic inflation. To eliminate the seasonality effect, we add month dummies to the model. Variables are transformed into first difference format to eliminate serial correlation and ensure the stationary of the data. Our panel data can be described as long panel, as we have only two cities (i=2) and 72 time periods (from January 2016 to December 2021). We choose the generalized least square (gls) model, as T is larger than N by far. We also re-estimate equation 1 with the linear regression model with panel-corrected standard errors as a robustness check.

3. RESULTS

Figure 1 compares the CPI weights for Dubai and Abu Dhabi. There is a similarity in the value of the weights in most components of the CPI across Dubai and Abu Dhabi. For example, the food and beverage component represents 12.3% in the consumer basket in Dubai and 13% in Abu Dhabi. However, there is a deviation in the weights of the housing component and the transportation component. In fact, the housing component represents the largest weight in the consumer basket, whether in the case of Dubai or in Abu Dhabi (See Figure 1). The transportation component (which contains prices of fuel, motor cars, motor cycles, bicycles, maintenance and spare parts of personal transport, air tickets prices) also has a relatively large weight in the consumer basket, as it represents about 15% in Abu Dhabi, while it represents 10.6% in Dubai. The merit of using fixed effect estimation is that it focuses on intracity (within) variation and ignores the intercity (across) variation. Table 1 presents the regression results from different models. Column 1 provides the results from the GLS model with error correlated across emirates, Column 2 describes the results from the GLS model with error correlated across emirates and emirate specific AR(1), and Column 3 presents the results of OLS of the panel-corrected standard errors for pooled OLS estimator. Irrespective of the regression estimation method, the change in crude Brent price always has a significant impact on the CPI.

The value of β_1 across different models is equivalent to 0.01 suggesting that a monthly change in the global oil price by 10% increases the monthly inflation rate by 0.1%.

	(1)	(2)	(3)
Independent Variable	GLSCORR	GLSCAR1	OLS-panel correlated
Δlog (Brent$_{t-1}$)	0.0166***	0.0159***	0.0146**
	(0.00477)	(0.00471)	(0.00489)
Δ NEER$_{t-1}$	0.000587	0.000548	0.000520
	(0.000417)	(0.000420)	(0.000427)
Δ Interest$_{t-1}$	-0.00425*	-0.00355	-0.00516**
	(0.00192)	(0.00182)	(0.00197)
VAT	0.0257***	0.0252***	0.0260***
	(0.00353)	(0.00341)	(0.00362)
Covid	-0.00375*	-0.00349*	-0.00410*
	(0.00160)	(0.00165)	(0.00164)
Δ FAO$_{t-1}$	0.0000325	0.00000286	0.0000714
	(0.000159)	(0.000154)	(0.000163)
_cons	-0.00245	-0.00237	-0.00170
	(0.00135)	(0.00135)	(0.00138)
N	144	144	144
City FE	Yes	Yes	Yes
Month dummy	Yes	Yes	Yes
Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

Table 1: Regression Results, Dependent Variable: Δlog(CPI)

Assuming that the elasticity of fuel prices in the UAE to changes in oil prices equals 1, which means that the increase in oil prices by 10% raises fuel prices domestically by 10%, and taking into account that the weight of the fuel in the consumer's basket is approximately 4%, this suggests that the direct effect of the increase in fuel prices that driven from the increase in oil prices will be around 0.004, which will feed into input prices across various commodities. Thus, 0.01 reflects the full impact on the consumers and the oil price pass-through effect in CPI. Other regressors have the expected effect on the inflation. Higher interest rate reduces inflation. The introduction of 5% VAT, increases the CPI by 2.5%. The COVID-19 restrictions had a deflationary impact. The NEER and the FAO variables have the expected sign but were not significant.

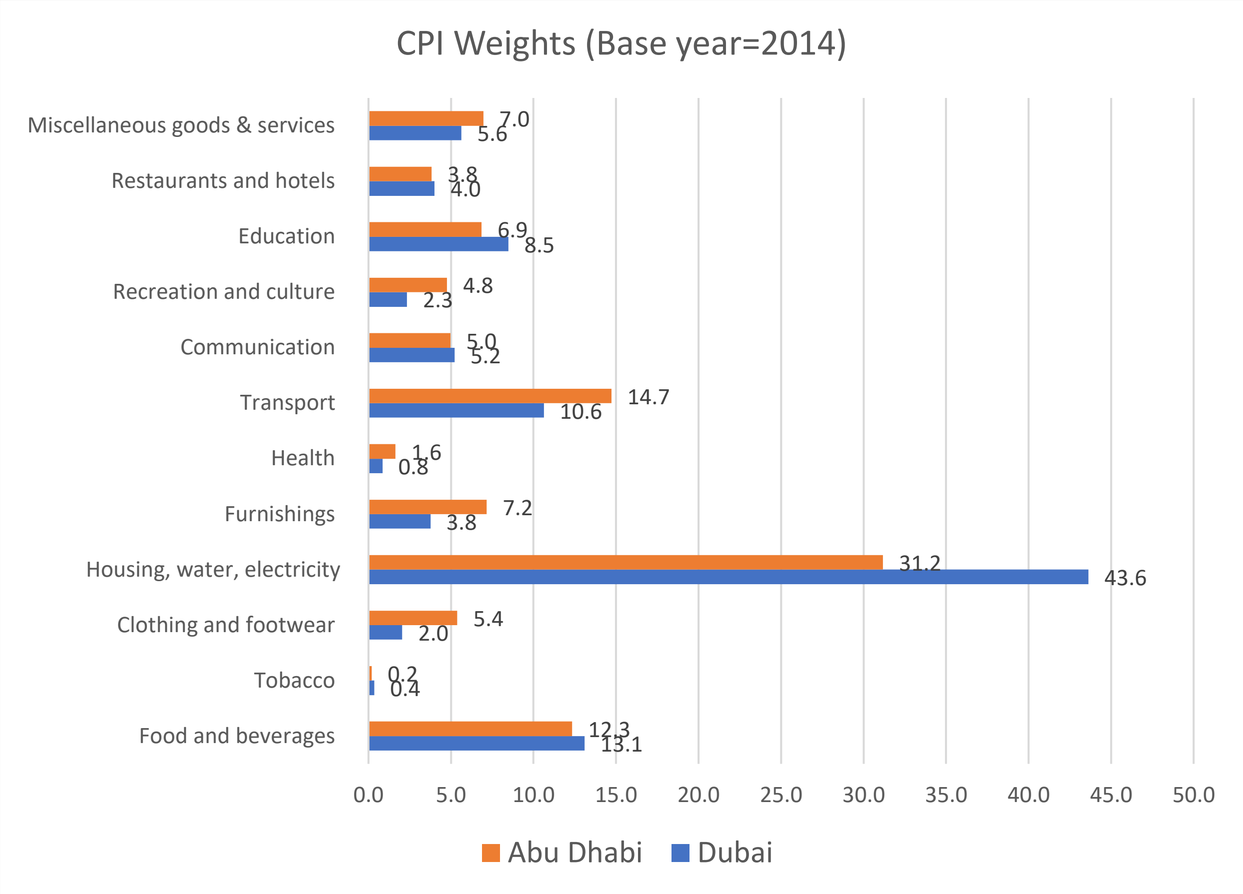

Figure 1: CPI Weights (Base year=2014)
(Source: Dubai Statistics Center and Statistics Center Abu Dhabi)

4. CONCLUSION

The global oil prices are a crucial macroeconomic variable affecting the economic performance of the global economy. Fluctuations of the oil prices can directly and indirectly affect the consumer price index. The primary purpose of this paper was to explore the pass-through effect from oil prices to domestic inflation in the UAE. The dynamic interaction among these variables examined adds to the existing literature on emerging markets; particularly the Gulf region. Our findings suggest the pass-through effect from the global oil prices to domestic inflation is quite small.

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SAVINGS AND DEBTS AS A SOURCES OF FINANCING CONSUMPTION OF POLISH HOUSEHOLDS

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ABSTRACT
The consumption, understood as the act and/or procces of satisfaction of human needs, is conditioned by a series of different determinants. The article presents the importance of economic factors, such as: debts and savings. Debts and savings are the so-called "time-deferred income" and are mainly used to finance any consumption related to the satisfaction of higher-order needs. This paper assesses the level of savings and the level and structure of debt of Polish households in a time frame view (retrospective of 2011–2020) on an all-Poland scale. The year 2011 has been assumed as a point of reference. In the analysis and comparison, we used the data from the statistical yearbooks of Poland, household budgets performed by Central Statistical Office and data from Financial Supervisory Commission. The survey showed that the share of savings in gross disposable income of the households sector icreased between 2011 and 2020. The level of indebtedness of Polish households also increased. At the end of the period subject to this research, consumption in Poland – in the value perspective – reached a higher level than in 2011. Positive changes were reported in the structure of consumption of Poles. A higher level of satisfying needs is mainly confirmed by a decrease in food indexes and increase in free choice indexes.
Keywords: *consumer expenditure, consumption, debt, households, savings*

1. INTRODUCTION

Household consumption is determined by factors of economic and non-economic nature. The so-called "time-deferred income", i.e., savings and loans, are a very important group of determinants. They condition the purchasing power of a household, acting in two opposite directions. A loan, through the purchase of consumer goods, allows to meet many needs in a relatively short time, however, due to the need to pay it back with interest, it reduces the purchasing power of the household in the future (Herendeen, 1986, p. 157). Savings, on the other hand, diminish the current resources, while increasing their future purchasing power. In other words, savings delay the satisfaction of consumption needs over time, and loans accelerate them. Savings that are well made and targeted at achieving a specific goal, can improve future consumption in general or in relation to specific groups of needs (e.g., saving for a house that end with its purchase will improve the level of satisfaction of housing needs). The household decides what part of the income should be allocated to current consumption and what to savings, and to what extent to finance consumption with loans (Dumicic, Cibaric, 2010, pp. 220-226). The impact of both savings and loans is seen mainly in the sphere of satisfaction of higher-order needs because these incomes are rarely, in fact only in crisis situations, used to meet basic needs. They enable the purchase of non-basic expensive goods and services, such as a house, a car, or renovating services, which are burdened with higher consumption risk and acquired relatively rarely, in the case of which the decision-making process usually consists of all successive phases. The aim of the study is to recognize the changes in the level of savings and the level and structure of debt in Polish households in the context of financing consumption. The time scope of the research covers the years 2011-2020. In order to achieve the assumed goals, information from secondary sources was used (including Statistical Yearbooks, household budgets, reports of the PFSA Office).

2. CHANGES IN THE LEVEL OF HOUSEHOLD SAVINGS

Household income is the main factor determining the level and structure of consumption. Its increase, however, translates into a quantitative growth in consumption only to a certain extent, as the intensity of higher-order needs decreases as they are satisfied, the ownership of households increases, and the standard of household equipment increases. In simple terms - an increase in income causes over time a decrease in the propensity to consume and an increase in the propensity to save. Another issue is risk aversion, manifested in the uncertainty of obtaining income in the future, which encourages households to protect themselves against such an possibility by saving. Such phenomena as deconsumption, sustainable consumption, conscious consumption and ecological consumption, etc., are also gaining importance. Considering the above, when the income exceeds the consumption needs of the household, there is a surplus of resources that can be allocated to accumulation, i.e., savings in various forms.

Specification Year	Households' final consumption expenditure	Gross saving
2011	97.3	2.7
2012	97.3	2.7
2013	96.1	3.9
2014	97.1	2.9
2015	97.0	3.0
2016	94.9	5.1
2017	96.3	3.7
2018	97.5	2.5
2019	96.1	3.9
2020	89.7	10.3

Table 1: Use of nominal income account of the households sector in the years 2011-2020 (total resources = 100)
(Source: GUS. 2015. p. 144, GUS. 2017. p. 145, GUS. 2018. p. 145, GUS. 2020. p. 148, GUS. 2022a. p. 150)

The macroeconomic data show that in 2011-2019 Polish households allocate a relatively small part of their gross income on savings (Table 1). However, the year of the outbreak of the Covid-19 pandemic in Poland changed this situation and caused the share of savings to increase significantly and it was almost 4 times higher than in 2011. The share of household savings in gross income at the end of 2020 was 10.3% and was the highest in twenty years. When studying the impact of savings on the consumption in Polish households, several crucial factors should be indicated. Firstly, Poles' savings are most often accumulated in liquid assets, i.e., in cash and bank deposits. Secondly, they are not essential in the day-to-day functioning of consumption entities. Thirdly, the high level of savings in the first year of the pandemic was mainly a result of the pandemic restrictions, which made it difficult to expect consumption to remain at the existing level. The possibilities of satisfying higher-order needs were limited by restrictions, and on the other hand, the propensity to consume was limited by the uncertainty about the further course of the pandemic (Kolasa, 2022). It should be emphasized that in this study the time scope of the analysis does not include the conditions caused by the Russian war in Ukraine. On the one hand they are related to further concerns and uncertainty of consumers, which limits consumption, and on the other hand, high inflation and its consequences favor consumption rather than saving. However, returning to 2020, the data of the Central Statistical Office show that there were clear disproportions in the propensity to save, depending on the property status of households. The restrictions mainly limited the availability of luxury goods and services.

They contributed to a decline in consumption and an increase in savings, mainly among affluent households. The expenditures of less affluent households did not change significantly, and considering the simultaneous decrease in income (e.g., due to job loss), it affected a decrease in savings. The abovementioned savings of wealthy people can be used to purchase real estate, which in the statistics are already classified as investments, not consumption. Thus, such a situation may negatively affect the consumption dynamics in the coming years. The first year of the pandemic, in addition to causing an increase in wealth disparities, which meant that the rich saved more than the poor or the middle class, also showed that the gradual lifting of restrictions did not trigger a buying boom. In Poland, the propensity to save is clearly differentiated in individual groups of households. It depends primarily on the level of income (Liberda, 2000, p. 15), but also results from the influence of other economic and non-economic determinants, including demographic, social, cultural and psychological ones (Widowicz, 2006, p. 69).

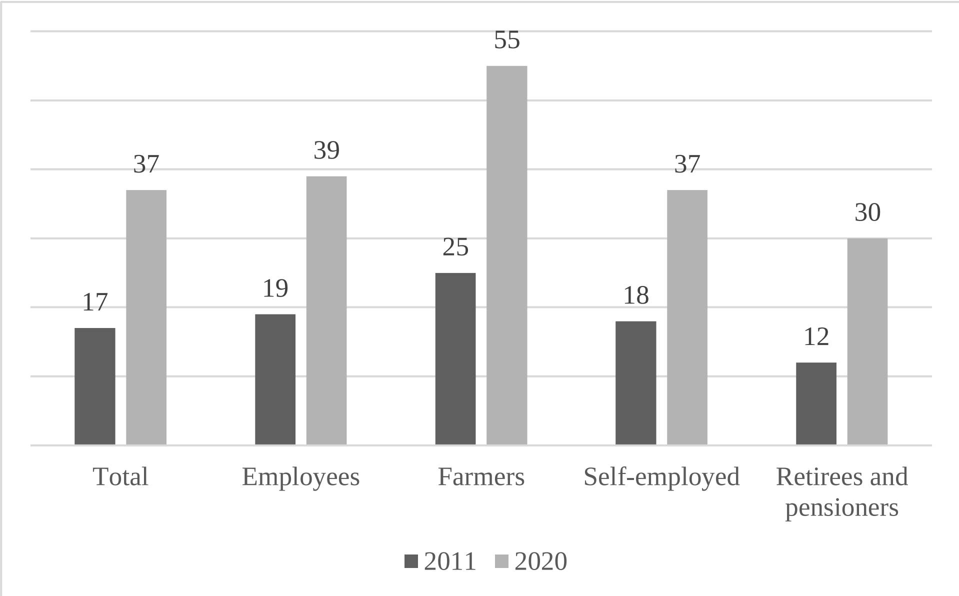

Figure 1: Share of savings in available income of households by socio-economic groups in 2020
(Source: GUS. 2012. pp. 83,99, GUS. 2021. pp. 118, 134.)

Based on the results of the research on household budgets, it can be concluded that the lowest propensity to save is typical of the households of retirement and disability pensioners (Fig. 1.). The specificity of these households is not conducive to saving. They mostly represent elderly people, economically inactive, staying in small households, whose monthly income does not allow saving. Moreover, due to the age of the members of the retirement and disability pensioners' households, a large part of the monetary budget is spent on health. Any free money resources are allocated to arranging a large amount of free time or helping children and grandchildren. In the case of this group, the notion of the so-called "eating" previous savings is often used. Farmers' households are characterized by the highest propensity to save. These are consumer-production households, and therefore their situation is also quite specific. This is because the natural consumption of these households significantly exceeds the level of natural consumption in other households. The incomes of these households, which fluctuate and are often seasonal, also play a significant role. Irregularity in purchases of agricultural machinery and equipment (once in a long time) is also important. For all households, the share of savings in disposable income was 17% in 2011, and 37% in 2020.

Summing up, the accumulation of savings in Poland is uneven and does not have to result in an increased willingness to spend a significant part of them on consumption. The propensity to save in the face of the still uncertain future may prove to be stronger than the willingness to compensate for reduced purchasing expenses in 2020.

3. LOAN DEBT OF POLISH HOUSEHOLDS

The concept of household debt can be perceived narrowly or broadly, depending on the context. In a narrow sense, this concept is mainly associated with taking loans from financial institutions, while in a broader sense it refers not only to debt in banks and quasi-banking institutions, but also debt in non-banking institutions, including mass institutions classified as communal services provided to local community (Świecka, M. Koziński, 2014). The market of debt products for households also includes the informal market (Bywalec, 2009, p. 174). The study adopts a narrower perspective of the concept of debt, referring this phenomenon only to household debt in banks. When examining the basic categories related to household debt, it should be emphasized that household debt can be, and often is, a normal state, associated with the need to finance expensive, strategic consumer goods and services, such as e.g. a purchase or renovation of a house or a need resulting from an emergency situation, such as the purchase of a medical operation abroad. However, indebtedness may, due to various reasons, turn into the problem of insolvency of the household, and although in such a case it constitutes a kind of payment gridlock, the temporary loss of financial liquidity does not have to mean the bankruptcy of the household. The latter situation occurs only when the problems accumulate to such an extent that the difficulties change from temporary (e.g., calculated in months) to permanent (calculated in years). In the permanent loss of the ability to make payments, there is a situation in which a household is unable to obtain new sources of financing, such as, for example, a consolidation loan or a loan from friends, due to poorly promising financial parameters, including creditworthiness. This situation usually makes it impossible for the household to continue functioning and means that it is necessary to apply in court for bankruptcy. The key role of loans provided to households is to enable them to meet a higher level of consumption than their current income level would imply. From the point of view of the purpose of incurring debts, loans to households can be divided into: consumption and housing loans. A consumer loan is related to the financing of current consumption (this is, among others, overdraft on a bank account, cash loan, installment loan, car loan, credit cards), and is also intended to finance expenditure on increasing human capital, e.g., education and treatment. A housing loan, taken mainly in the form of a mortgage, is intended to finance consumption over time, i.e., a house or a flat. Even though the time horizon of its repayment is much longer than that of the consumer loan, it is usually a significant burden on the household budget (Garza, 2012, p. 50). Considering the specificity of the development of the loan market in Poland, related to the initially moderate (in the first half of the 1990s) and then significant interest in loans offered by banks (in the second half of the 1990s and the beginning of the 21st century), it should be added that the interest of Polish households in specific types of loans has also changed (Grzega, 2012, p. 144). And so, the year that started this analysis, i.e., 2011, was the last year in which a double-digit increase in the number of active mortgage loan agreements was recorded. It was also the end of the so-called "mortgage-boom". The next decade brought a kind of stagnation in taking mortgage loans and specialists called this time a mature market (Kisiel, 2022). First of all, 2011 was marked by the abandonment of loans in Swiss francs. In addition, the requirements for households wishing to take a housing loan were increased. The reason for the decrease in debt in 2011 was also the limitation of the "Family's Own Home" mortgage loan subsidy program. The data in Table 2 show that in 2012 the rate of household debt due to housing loans did not exceed 1% (year on year), while a clear decrease in household debt due to consumer loans was recorded.

The weakening of the overall rate of growth of loans to households was caused by supply and demand factors, but the most significant in this case was the economic downturn and deterioration in the economic growth prospects as well as the situation in the labor market, which led to a reduction in demand for loans. The decline in demand was caused by the deterioration in consumer confidence and increased concerns about the future income situation.

Year	Total		Housing loans		Consumer loans		Other loans	
	in PLN billion	% change year/ year	in PLN billion	% change year/ year	in PLN billion	% change year/ year	in PLN billion	% change year/ year
2011	532.0	-	319.0	-	130.3	-	82.7	-
2012	533.2	0.2	321.8	0.9	123.4	-5.3	88.1	6.5
2013	554.6	4.0	335.7	4.3	126.3	2.4	92.6	5.1
2014	588.9	6.2	355.9	6.0	131.6	4.2	101.4	9.5
2015	628.5	6.7	381.3	7.1	140.2	6.5	107.0	5.5
2016	660.7	5.1	400.3	5.0	150.2	7.1	110.2	3.0
2017	671.9	1.7	394.3	-1.5	163.2	8.7	114.4	3.8
2018	708.4	5.4	421.4	6.9	171.7	5.2	115.3	0.8
2019	745.3	5.2	448.9	6.5	179.4	4.5	117.0	1.5
2020	766.9	2.9	477.5	6.4	178.5	-0.5	110.8	-5.3

Table 2: Loans to households in 2011-2020 (gross carrying amount)
(Source: UKNF. 2013. p. 12, UKNF. 2016, p. 22, UKNF. 2019. p. 11, UKNF. 2022. p. 149.)

In addition, a powerful growth in lending in the previous years meant that some households had already satisfied their needs financed with the use of loans (PFSA, 2014, pp. 6-7). A moderate increase in household debt due to taken loans could be observed in 2013-2016. The very debt in banks increased in this period by PLN 127.5 billion (compared to 2012) and the growth dynamics amounted to 4%, 6.2%, 6.7% and 5.1%, respectively. It was only in 2017 that the dynamics of households' receivables significantly decreased. The reasons for the growing interest of households in housing, consumer and other loans in 2013-2016 include, among others, economic recovery in Poland started in 2013, and the related improvement in the situation on the labor market, the adoption of the law on state aid for families "Family 500+" and improvement in consumers' moods. Low interest rates, stable situation of the public finance sector and a relatively favorable situation on the housing market were also significant (PFSA, 2017, pp. 10-16). As already mentioned, in 2017 the growth rate of household debt due to loans contracted in total decreased to 1.7%. This level of the ratio was mainly affected by the negative growth rate of debt due to mortgages. Consumer loans increased by 8.7% compared to the previous year and it was the largest increase in the analyzed decade. The increase in the value of the portfolio of loans in households in nominal terms by only PLN 11.2 billion resulted from the appreciation of the zloty, which resulted in a decrease in the zloty denominated loans (PFSA, 2018, p. 7). The high growth rate of consumer loans in 2017 was related to the wider availability of short-term retail loans. In 2018-2019, the rate of household debt due to taken loans was at the level of 5.4-5.2%, with the growth rate of mortgage loans in relation to consumer loans being slightly higher. The year 2019 was the time when the long period of sustained high economic growth in Poland ended. The slowdown in economic growth and its consequences were reflected in the rate of debt of households in 2020. Although the growth rate of housing loans amounted to 6.4%, it decreased in the case of consumer loans by 0.5% and for other loans by 5.3%. 2020 was an exceptional period in the Polish and global economy. The coronavirus pandemic that reached Europe, paralyzed social and economic life in the country. For the first time in almost thirty years, Poland observed a decline in real GDP.

The main factor behind the decline in GDP was domestic demand (decline by 3.7%). However, the impact of consumption and investment demand on economic growth was uneven. As a result of the reduced demand for consumer goods and services and limited opportunities to meet consumer needs, consumption decreased by 1.5% (PFSA, 2021, pp. 105-108).

Year / Loans:	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Housing	60.0	60.4	60.5	60.4	60.7	60.6	58.7	59.5	60.2	62.3
Consumer	24.5	23.1	22.8	22.3	22.3	22.7	24.3	24.2	24.1	23.2
Other	15.5	16.5	16.7	17.2	17.0	16.7	17.0	16.3	15.7	14.5

Table 3: Structure of gross receivables from households in 2011-2020 (Loans to households total = 100)
(Source: UKNF. 2013. p. 12, UKNF. 2016, p. 22, UKNF. 2019. p. 11, UKNF. 2022. p. 149.)

The data in Table 3 show that in the years 2011-2020 the structure of household debt due to taken loans did not change much. The share of housing loans increased by 2.3 percentage points, and the share of consumer loans decreased slightly, i.e., by 1.3 percentage points. The share of other loans also decreased - by 1 percentage point. It should be added that the high dynamics of consumer loans recorded in the previous years (especially in 2006-2008) resulted in limited potential for further indebtedness of households. In 2020, there was still a relatively high saturation with consumer and other loans, and housing loans invariably and clearly dominated in the overall structure of loans in households.

4. HOUSEHOLD FINAL CONSUMPTION EXPENDITURE IN POLAND

The consumption structure of the whole household sector is the primary indicator enabling the relatively objective evaluation of the level of economic development of a country. In Statistics Poland methodology, the household final consumption expenditure is exploited with this end in view. This category includes all the expenses made by the household sector, which is one of six institutional sectors in the country. The remaining part is the government expenses and the expenses of non-governmental organizations for healthcare and education. At the beginning, it is worth noting that, that at the end of the period subject to this research, consumption in Poland – in the value perspective – reached a higher level than in 2011 by 23,6% (GUS, 2022b).

Year / Expenditures	2011	2020
Food and non-alcoholic beverages	18.9	17.8
Alcoholic beverages, tobacco, narcotics	6.4	6.5
Clothing and footwear	4.2	4.8
Housing, water, electricity, gas, and other fuels	24.4	20.8
Furnishings	4.5	5.7
Health	4.4	6.4
Transport	10.0	11.8
Communication	2.9	2.4
Recreation and culture	7.7	7.3
Education	1.2	0.9
Restaurants and hotels	2.8	3.5
Miscellaneous goods and services	12.5	12.1

Table 4: The structure of the household final consumption expenditure in Poland in the years 2011 and 2020 (in % of total expenditure)
(Source: GUS 2022b.)

Data in Table 4 show that in the years 2011-2020 the share of spending on food in total expenditure declined by 1.1 percentage points. Decrease was also observed in the percentage of expenditure on housing and energy carriers (3.6 percentage points), communication (0.5 percentage point), recreation and culture (0.4), education (0.3) as well as other expenditure on goods and services (by 0.4). On the other hand, there was an increase in the share of spending on health (2.0), transport (1.8), furnishings (1.2), restaurants and hotels (0.7), clothing and footwear (0.6) and alcohol and tabacco (0.1). The change showing the improvement in the living conditions in Poland in the years 2011-2020 was the decrease in the value of nutrition indicator, with a simultaneous increase in real disposable gross income in the household sector (GUS, 2022b). Decline in the value of the discussed measure indicates a gradual improvement in the wealth of the Polish society. In the years 2011-2020 favourable others changes were reported in Poland in the structure of individual consumption in the household sector too. They were related to the decrease the share of primary expenditure in the overall structure of spending (including housing, education, communication) and the increase in the share of expenditure on restaurants, hotels, furnishings, clothing and footwear.

Year / Specification	2011	2020
Computer or device with access to the Internet	62.3	85.1
Mobile phone	90.3	98.1
of which smartphone	-	79.0
Automatic washing machine	91.1	95.1
Microwave oven	53.3	64.6
Dishwasher	17.7	45.7
Passenger car	60.2	71.4

Table 5: *Households equipped with selected durable goods in the years 2011 and 2020, in % of a given group of households*
(Source: GUS. 2012. pp. 200-201, GUS. 2021. pp. 424-423)

In the years 2011-2020 the others positive quantitative and qualitative changes occurred as well. The significant progress in level of equipping with durable consumer goods in Poland was visible (table 5). The improvement was noted in the level of equipping with the basic household appliances and in the luxury equipment. Possessing a private car became popularized, as well as having modern communication and recreation appliances, household appliances and others. The state of possession was improving year by year in quantitative and qualitative sense as well. Each year Polish people purchased more and more multifunctional goods, stylized, individual, versatile, esthetic, eco-products and others. The improvement of the condition of possessing the durable consumer products is a positive phenomenon. It proves the existence of consumption modernization and simultaneously it gives expression to better fulfillment of consumption needs in Poland, confirming the improvement in life conditions as well.

5. CONCLUSION

Understanding the impact of household savings and debts on the level and structure of consumption is multidimensional. Difficulties in assessing this relationship result, among others, from the fact that measurements cover not only the balance of incomes and expenditures of households, the absolute level and structure of savings and debt or their relation to disposable income and household ownership, but also a number of non-value issues that are difficult to measure, such as the subjective level of satisfaction of needs, general quality of life related to the overall functioning of households, including those resulting from the availability of specific sources of financing, and a number of additional economic and non-economic conditions, including, for example, emergencies caused by the Covid-19 pandemic or those resulting from personal characteristics of household members. Summarizing all the considerations, the following conclusions can be drawn:

- Both savings and loans constitute natural sources of financing for consumption at various stages of the life cycle of households and are commonly used elements of contemporary financial systems. They are mainly used to finance the purchase of higher-order goods and services.
- The relatively good socio-economic situation of the country observed in 2011-2020, as well as the high availability of debt products supported the consumption model of life and the phenomenon of indebtedness in Polish households.
- The total amount of overdue liabilities in 2020 increased by PLN 234.9 billion compared to 2011 and finally reached PLN 766.9 billion. The dominant position in the structure of loans given to households represented housing loans, constituting over 62% of all granted loans.
- The analysis of macroeconomic data shows that in 2011-2019 the level of savings of Polish households was low. 2020 changed this situation. The level of savings increased significantly, especially in the group of highly affluent households, and this was mainly due to the limited availability of selected goods and services as a result of the Covid 19 pandemic, as well as increasing uncertainty and increased concern of Poles about the future.
- In 2020, consumption in Poland - in value terms - reached a level higher by 23.6% compared to 2011. Moreover, positive changes in the consumption structure of Poles were observed. The higher level of satisfaction of needs firstly confirms a decrease in food expenditure and an increase in expenditure to satisfy non-basic needs and an improvement in the level of equipment of Polish households.

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MANAGERS FACTORS IN DELEGATING WORK TASKS TO ASSOCIATES

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ABSTRACT

Management cannot do all work tasks alone, but with the help and cooperation of its associates. Managers have to delegate some work tasks to their employees. Which work tasks managers will delegate depends on the manager's judgment. Trust is indispensable in the manager's decision to delegate work tasks to his colleagues. In addition to trust, the willingness of employees to perform delegated work tasks is also important, that is, the expertise of employees, the level of knowledge of employees, and the accuracy and quality of the work entrusted to employees. In this paper, using the method of interviews with 35 middle and operational managers, based on the data collected during the interviews, the necessary characteristics of employees and their necessary competencies for the manager's decision on delegation are determined, as well as the reasons for delegating work to associates. As a leading factor in the decision on delegation, managers choose the degree of trust in the associates, then the character of the associates, the level of knowledge of the associates and, finally, the professional qualifications of the associates. They state that some employees have the necessary knowledge, but do not inspire confidence or have a character that brings unrest to the organization and negatively affects teamwork so they cannot delegate work tasks to such employees. On contrary, there are employees with average knowledge and their character benefits the organization they work in and strengthens teamwork, so managers decide to delegate work tasks to such employees. Almost every day, managers delegate jobs and tasks to colleagues. In a situation where managers need to choose between trust as a factor of delegation and all other factors (level of knowledge, character of collaborators and professional training), managers choose the level of trust.

Keywords: *delegation, managers, associates, trust, knowledge*

1. INTRODUCTION

Delegation implies the transfer of decision-making by managers to their associates and the transfer of authority to associates. Without the transfer of authority, there is no decision-making process. Management cannot do all work tasks alone, but in cooperation with its colleagues. Some managers prefer to have associates in their team and some prefer to have subordinates. Associates are more efficient in their work and have greater authority when making decisions. The degree of trust is much higher between managers and associates than between managers and their subordinates. Which work tasks managers will delegate and to what extent, depends on the willingness of employees to perform these tasks, the level of knowledge of employees, the expertise of employees and the level of trust of managers in employees.

Which of the mentioned factors will be decisive for the manager's decision on delegation will be shown by the results of the research, obtained by the interview method with 35 managers (operational and middle management) employed in state and private companies. Turkalj and Miklošević (2017: 19) state that managers cannot perform all tasks by themselves, they must delegate a part to their employees and which part it will be depends on their assessment. Human resources should also invest in their own knowledge and skills, in addition to investments in employees by employers. It is no longer enough for employees to just carry out the orders of their superiors, but they must also act proactively (Miklošević and Turić, 2012: 625). The progress of each employee in the workplace is only possible with the personal effort and engagement of each employee. When an employee has a lower level of knowledge, managers will certainly not choose one as the closest associate to whom they can delegate work tasks, and thus authority. It is up to individuals to fulfil formal (academic education) and informal conditions (personal skills, attending courses, seminars, etc.) to acquire the necessary level of knowledge and thereby increase the chances of being recognized by management as a trustworthy employee, i.e., an employee who can perform delegated tasks in the shortest possible time and in the best possible way. The authors Ana Globocnik Zunac et al (2022: 17) conclude that delegation as a management function is an important content of educational programs for future managers. According to Sikavica et al (2008: 331), the term delegation refers to the delegation of authority by higher-level managers to lower-level managers or to associates. However, not only authority is delegated, but also responsibilities, and if the person to whom the work is delegated does not perform the work well, the manager who authorized that person to perform the work is responsible. Delegation is a real test for both, employees and managers. It is a test of the manager's knowledge, intuition and abilities, whether he will recognize the potential of his associates, will be able to motivate associates and teach them new knowledge and skills, so that the employees themselves can perform tasks in the domain of management. The joint success of managers and employees is delegation. The tasks of employees (later associates) are to try to justify the manager's trust and to acquire new knowledge and skills so, that with such practice over the years, they have a chance to become managers. The managerial function of delegation creates new managers, successors of managers. Each manager evaluates and selects his associates during his work experience, who later become his followers and eventually become managers with many years of experience. A business cycle full of trust between a manager and his associates is exactly delegation, it is also a business cycle of great responsibility. When employees take over new responsibilities and new jobs from the manager, they also assume responsibility and act on behalf of the manager in front of work colleagues and business partners. It is a great honour, responsibility and success for those employees whom the manager chooses as his associates, and later as his followers. These employees may be under pressure to acquire new knowledge and perform new work tasks. Precisely here, an accurate assessment of the management is very necessary in order not to prematurely delegate work tasks to associates, while they are not yet ready, based on their knowledge and abilities.

2. ADVANTAGES AND DISADVANTAGES OF DELEGATING WORK TASKS

The advantages of delegation are certainly the performance of several work tasks at once. When more employees are involved in performing work tasks, there is no downtime in business, the process of delivering products and services to customers is shortened, the company reacts more quickly to changes in the external environment and the representation of teamwork increases.
Teamwork contributes to the dissemination of new ideas, organizational efficiency and greater synergy within the company (Stanić et al, 2017). A prerequisite for delegating work tasks is a higher level of manager's trust in employees (co-workers).

Most employees in the company are just employees, and those employees in whom the manager has confidence and who can perform even the most demanding work tasks are actually called co-workers. It is not an easy job for managers to find associates who are experts and in whom the manager has confidence. If the trust between manager and co-workers that existed and was built up over the years is lost, it is difficult to regain the same level of trust. Damaged trust also affects the quality of the work performed, as well as the satisfaction of customers and clients. There will be no breach of trust when the manager does all the work himself, but this is an impossible situation in medium-sized and larger companies, while in smaller company managers can really do all the work, but such a situation is not common in business, because one person does not know all business elements or does not manage to complete it all. Without reliable associates, there is no positive operation of the company, nor meeting the needs of clients, retaining existing clients and attracting new clients. For delegation to be successful, it is necessary to achieve trust between associates and organizations (Pusić, 2002). If the manager misjudges the employee's willingness to perform demanding business tasks, unwanted negative effects may occur. Managers should carefully assess which employee is ready to start the delegation process and when. For an employee to start the delegation process, one must be an employee of high intellectual capacity, resourceful, resistant to change, active and proactive, courageous and capable of performing a large amount of diverse work in the shortest possible time. There are fewer such employees and the manager needs to see which employees have the capacity to become co-workers and future managers. The responsibility for delegation rests with the managers and the employees who are selected by the managers have the task of justifying the trust from the managers so it is not a rare case that managers look for followers who are similar to themselves.

3. RESEARCH METHODOLOGY AND RESEARCH RESULTS

The research was conducted in September 2022, using the interview method with 35 managers (operational and middle managers). During the interview, questions were asked about how important the trust in colleagues is when managers are deciding on the delegation of work tasks, how often they delegate work tasks, how much time is needed for colleagues to be ready to perform delegated tasks, whether trust in employees is more important to them, the degree professional qualifications of the employee or knowledge of the employee in the decision on delegation.

The following research questions were asked:

- RQ1: *Is it difficult for managers to find employees to delegate work tasks to?*
- RQ2: *What is the decisive factor in delegation (employee knowledge, professional training, level of trust or character of the employee)?*
- RQ3*: Is a high level of employee knowledge or a degree of trust in employees more important to managers when deciding on delegation?*
- RQ4: *Is the employee's character or employee's knowledge level more important to managers when deciding on delegation?*
- RQ5: *How often do managers delegate work tasks?*

The following hypotheses have been set:

- H1: *When deciding on delegation, the most important thing for managers is the level of trust in their colleagues*
- H2: *It is difficult for managers to find co-workers to whom they can delegate work tasks*

25 men (71.4%) and 10 women (28.6%) participated in the research. 20 managers work in state-owned companies (57.1%), and 15 managers work in private companies (42.9).

Table 1 shows the responses of managers to the question of whether they delegate work tasks to their employees daily. Most managers delegate almost daily work tasks to their colleagues (94.3%). Managers point out that they cannot do all the work by themselves, because there is a lot of diverse work from various business areas and they organize business processes, delegate work tasks to their closest colleagues, divide work responsibilities among employees and do part of the operational work themselves.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	33	94.3	94.3	94.3
	no	2	5.7	5.7	100.0
	Total	35	100.0	100.0	

Table 1: Daily delegation of work tasks
(Source: author's work according to research results)

Table 2 shows managers' answers to the question of how important it is for them to trust their employees to whom they delegate work tasks. All managers stated in the interview that the degree of trust in employees is important to them (100.0%). Managers answered that without trust they will not even delegate work tasks to their co-workers and that it takes more time to develop trust in their co-workers. When hiring new employees, most responses were that new employees need at least two years to learn the job and to gain the manager's trust. Some managers employed in state institutions point out that the prescribed trial period of three or six months for new employees does not suit them, because it is not enough time for the new employee to learn the job and gain the trust of the collective and the manager and not enough time for the collective and the manager to get to know the new employee. Trust is the most important element for managers when deciding on delegating work tasks to associates, especially when delegating work tasks that include confidential information and there are a lot of such work tasks so managers try to assess well to whom they will delegate work tasks they trust the most. Almost everyone states that sometimes they made a mistake in their assessment, because they delegated work tasks too early, until they got to know well the co-workers to whom they decided to delegate work tasks.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	35	100.0	100.0	100.0
	no	0	0.0	0.0	100.0
	Total	35	100.0	100.0	

Table 2: The importance of the manager's degree of trust in employees
(Source: author's work according to research results)

Table 3 shows how important an employee's character is to managers. A high percentage of managers (77.1%) stated that the employee's character is more important to them than the employee's level of knowledge, for the reason that employees with a difficult character can cause mistrust and confusion in interpersonal relationships in business and at the workplace relationships, as well as a series of bad effects that negatively reflect on business and the organizational climate and consequently on the company's business results. Managers estimate that employees with a lower or medium level of knowledge would fit into the team better than employees with difficult characters, because they expect that with time and experience, even employees with an average level of knowledge will acquire higher level knowledge, while employees with difficult characters and an enviable level knowledge bring more harm than good for the well-being of companies and collectives. Therefore, such a high percentage is in favour of the employee's character.

Of course, managers want both in their associates and colleagues, they want an appropriate level of knowledge, but also a friendly character, flexible, adaptable and inclined to teamwork. But if they have to choose between character and level of knowledge, they chose character, not knowledge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The character of the employee	27	77.1	77.1	77.1
	Level of employee knowledge	8	22.9	22.9	100.0
	Total	35	100.0	100.0	

Table 3: Selecting an employee's character or employee's knowledge level
(Source: author's work according to research results)

Furthermore, in the interview, managers were asked to evaluate and answer whether they would rather delegate work tasks to employees they trust or to employees with a high level of knowledge (Table 4). In this situation, a high percentage of managers chose the level of trust (91.4%), in relation to the high level of employee knowledge, because they state that if an employee has an enviable level of knowledge and does not inspire confidence, managers cannot delegate work tasks to such an employee. For delegation, they state that it is necessary for the manager to have confidence in the employee, that the employee has a certain level of knowledge necessary for the work being performed and that the employee will acquire other necessary knowledge according to work experience so it is very important for them that the employee is a team player with a character that does not excludes others and does not create a bad working atmosphere.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree of trust	32	91.4	91.4	91.4
	High level of employee knowledge	3	8.6	8.6	100.0
	Total	35	100.0	100.0	

Table 4: Choosing a degree of trust in employees or a high level of employee knowledge
(Source: author's work according to research results)

In the interview, the managers emphasize that it is difficult for them to single out only one employee competency in their decision on delegation, because the decision on delegation is made up of a number of factors. However, in situations where they have to choose (Table 5), the degree of trust is again the leading factor in the decision to delegate (57.1%), in relation to the employee's character (42.9%). In relation to a high level of knowledge, the character of the employee has a greater advantage. The trust that the manager has in the employees and the character of the employees are very important for managers when making decisions about delegating work tasks to their colleagues and they expect that employees will gain a higher level of knowledge during the work experience gained.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree of trust	20	57.1	57.1	57.1
	The character of the employee	15	42.9	42.9	100.0
	Total	35	100.0	100.0	

Table 5: Choosing the degree of trust in employees or the character of employees
(Source: author's work according to research results)

When choosing between the employee's knowledge level and the employee's professional qualification, managers choose the employee's knowledge level in a high percentage (85.7%). They state that the most important thing for them is that the employees work hard and that, through their work and experience, they acquire the necessary knowledge and skills for the work they do. Managers pointed out that in practice they have seen employees with, for example, a secondary vocational education who have more knowledge than employees with a higher vocational education, but the secondary vocational education made it impossible for employees to progress. Therefore, they prioritized the employee's knowledge more than the employee's expertise when deciding on delegating work tasks to colleagues. They state that the level of knowledge does not depend on the professional training of the employees, but on the effort of each individual employee and that a winning combination is a high professional training and an enviable level of knowledge of the employees when choosing their closest collaborators.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Level of employee knowledge	30	85.7	85.7	85.7
	Professional education of the employee	5	14.3	14.3	100.0
	Total	35	100.0	100.0	

Table 6: Selection of the employee's knowledge level or professional qualification (Source: author's work according to research results)

The question arises whether managers find it difficult or easy to find work colleagues to whom they will delegate work tasks (Table 7). 85.7% of managers find it difficult to find employees to delegate tasks to. Managers state that it is difficult to find all the necessary factors for delegation in one person (one employee), namely: trust in the employee, knowledge, character and appropriate professional training of the employee, as the reason for the difficulty of finding employees to whom they will delegate work tasks. They state that in practice they have encountered situations where an employee has knowledge, but does not inspire confidence or is a person of unpredictable character, so the manager cannot be sure of such an employee. Managers also point out that in practice there are employees whom they trust, but they do not have the capacity to acquire new knowledge and skills necessary to be able to perform delegated tasks and conclude that it is difficult to find employees who are trustworthy and who at the same time have the capacity to acquire new knowledge and expansion of existing knowledge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	30	85.7	85.7	85.7
	no	5	14.3	14.3	100.0
	Total	35	100.0	100.0	

Table 7: It is more difficult to find collaborators for delegating work tasks (Source: author's work according to research results)

Table 8 shows the possibility of selecting several key factors important for the manager's decision on delegating work tasks to associates (Table 8). Managers chose first the degree of trust (57.1%), which is the leading factor influencing the decision to delegate. Then, in second place, is the character of the employee (22.9%), then the level of knowledge of the employee (14.3%) and in the last place is the professional training of the employee (5.7%).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree of trust	20	57.1	57.1	57.1
	Level of employee knowledge	5	14.3	14.3	71.4
	The character of the employee	8	22.9	22.9	94.3
	Professional education of the employee	2	5.7	5.7	100.0
	Total	35	100.0	100.0	

Table 8: Factors influencing the manager's decision to delegate
(Source: author's work according to research results)

All managers stated during the interview that without trust they would not delegate work tasks to their colleagues. They point out that it is difficult for them to find an employee who has all the essential characteristics necessary for making a manager's decision on the delegation of work tasks. Professional training of employees is the least necessary factor for managers when deciding on delegation. Trust between managers and employees is a process that lasts for several years, according to the managers, it is systematically upgraded during business and the manager and employee get to know each other more. During the daily cooperation of managers and associates, there is much-needed understanding on both sides, work tasks are solved faster and more efficiently, delegation of work tasks becomes routine and teamwork is at an enviable level. Considering the results of the research, both hypotheses are accepted (H1: *When deciding on delegation, the most important for managers is the level of trust in colleagues*, H2: *It is difficult for managers to find co-workers to whom they can delegate work tasks*), because trust is the first factor that managers choose when deciding on the delegation of work or work tasks and a high percentage of managers claim that it is difficult to find co-workers to whom they can delegate work tasks.

4. CONCLUSION

The goal of this work was to find out what is most important to managers when they decide to delegate work tasks to associates, if it is the level of trust in associates, the level of knowledge of associates, the character of associates or the professional qualifications of associates. Trust in colleagues is very important to all interviewed managers. Most managers delegate work tasks to their colleagues almost every day and conclude that it is difficult to find employees to whom they can delegate work tasks. When given the opportunity to choose between employee character and employee knowledge managers choose employee character, as a more important factor, because they declared that employee character is something they cannot significantly influence and they expect that employees (collaborators) will acquire the necessary level of knowledge through work experience and training at work. In comparing the level of trust between managers and associates and the higher level of knowledge of employees managers choose the level of trust, because they cannot and do not want to delegate work tasks to employees they do not trust, even though, for example, these employees have an enviable level of knowledge. The character of the employee and the degree of trust have an equal ratio, but even in this case, the degree of trust prevails. The level of knowledge of the employee convincingly leads the professional training of the employee, managers gave priority to knowledge when deciding on delegation, rather than the completed professional training of the employee. Most managers point out that it is difficult for them to find employees to whom they can delegate work tasks. The leading factor in the manager's decision on delegation is the degree of trust in the employees, then the character of the employee, the level of knowledge of the employee and finally the professional training of the employee.

During the COVID-19 pandemic, managers emphasize that the delegation process was much more difficult for them, due to the measures that everyone had to follow for health reasons.

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THE ROAD TOWARDS SUSTAINABILITY - FACING THE PARADOX OF PROGRESS

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ABSTRACT
Perhaps one of the most burning questions in the economic literature is whether economic growth can be sustained in a world of limited resources. Up until today, humanity has managed to identify a number of solutions to alleviate the problems of resource scarcity, even in the face of an unprecedented increase in the world's population and resource consumption. These solutions were not generated automatically, but instead are the result of intentional efforts vis-à-vis the signals provided by resource depletion. Moreover, recent decades have witnessed a growing level of awareness regarding resource depletion, but also growing concerns about the impact of the world's population (and economic growth) on the environment. Sustainability is a concept that emerged in the face of acknowledging the impending ecological problems and appears to be one of the driving forces of the late 20th century. Various organizations and institutions, as well as scientists, have contributed to the evolution of the concept; nevertheless, implementing its principles and objectives is still ongoing. Even though it has received worldwide recognition, the concept of sustainability has been subject to criticism, while also being used without considering its real meaning and implications. Over time, the concept has adapted to the contemporary requirements of the complex global environment, and its objectives have contributed to promoting more conscious behaviors which are adjusted to the limits of the environment. That is why the concept has come to be transposed into various fields and became increasingly important to all of its stakeholders. Thus, the present paper aims to clarify – through the study of literature and following the timeline of events in relation to sustainability - how the interest and need for sustainability emerged and to determine where sustainability stands today, given the undertaken efforts at multiple levels.
Keywords: *Humanity Evolution, Progress, Sustainability*

1. INTRODUCTION

The vagueness of the concept of sustainability and the increasing importance attached to it in national, international and corporate policy, has led to a long series of debates on its interpretation. This has resulted in a variety of definitions that even today have failed to provide the world with a consensus on sustainability. Nowadays, sustainability is seen as a forward-looking paradigm in which economic, social and environmental considerations are brought together to achieve a better quality of life. Under these circumstances, this paper follows to understand the series of affairs that have led to shaping the concept of sustainable development, by going back to the early days when progress was acknowledged.

2. HUMANITY EVOLUTION

The evolution of humanity would be hard to imagine without the idea of progress. Progress is based on the idea that civilization has transitioned, is transiting, and will continue to transit in a desirable direction (Bury, 1932). The first ideas about progress began to appear as early as the Greco-Roman period (Burkert, 1997), but it was the Christians and Hebrews who promoted the linear expression of time as a sequence of events (Von Wright, 1997). In the medieval era, the Christian conception of progress included utopian ideas, promoting a sense of improvement in this world as preparation for the afterlife. By the 13th century, two fundamental aspects had already been formed in the European conception of human progress, namely: the awareness of cultural progress and the belief in a future golden era of morality (Nisbet, 1980). Western modernity and progress came to be almost synonymous (Du Pisani, 2006). The Renaissance period witnessed ideas propagating the cyclical nature of progress, but the reform thinkers revived the idea of linear progress (Nisbet, 1980). In the late 17th century, French scientists claimed that 'humanity, with the help of science and technology, is on a path of necessary and unlimited progress' (Von Wright, 1997). From the 13th to the 20th century, the idea of progress reaches its peak in the Western civilisation as a result of several scientific works (Nisbet, 1980). This established the link between progress and empirical knowledge, which reinforced the belief that science was the way forward and would give humanity control over nature (Nisbet, 1980; Von Wright, 1997). While the Industrial Revolution had been unfolding globally since the 18th century - irrevocably transforming societies - progress was associated with economic growth. Industrialisation led people to believe that it was necessary and acceptable to exploit the environment in order to maximise economic output, and that only the products of industry had value (Worster, 1993). Since the mid-seventeenth century, history has been marked by a series of schools of thought with economic, environmental, political, social and cultural elements that laid the foundations of capitalism (Bettencourt and Kaur, 2011). Concurrent with the emergence of the new economic model in the social context of the time (and in the dynamics of organization at public and governmental levels), there is also the psychological and economic validation of individualistic behavior, which finds the individual in a continuous effort to satisfy his or her needs (Komiyama and Takeuchi, 2006). The idea of a "law of progress" and its potential benefits emerged in the 19th century. Comte, Marx, Hegel, Spencer and others described the progress of humanity as irreversible, unstoppable and unfolding in successive stages. Around these ideas was optimism that scientific progress and technology would lead to a golden era. On the other hand, there was a less optimistic side. Industrial capitalism did not benefit everyone, and as the gains of the global economic system flowed mainly to industrialised countries, the gaps between rich and poor societies widened (Du Pisani, 2006). The unequal distribution of the world's wealth was to become one of the main factors in the development debate. Another major problem associated with industrial development - the implications of which were not initially realised - was the environmental degradation caused by the exploitation of raw materials, i.e. non-renewable resources, on a unprecedented scale (Boyden, 1997). In the 19th century, humanity was making the transition towards what was new, modern, and synthetic, leaving nature and traditions behind (Stanciulescu and Diaconescu, 2014). The period is marked by the emergence of new types of industries such as electrical engineering or automotive, and also at that time, the chemical industry began to develop through the production of medicines, perfumes and plastics. All of these, carried out in a predominantly capitalist system since its emergence, have given rise to differences that are difficult to reconcile between the needs of the individual and the needs of the natural environment. It was not until the 1970s that the problems raised by economic progress began to be exposed (Forrester, 1971; United Nations Conference on the Human Environment, 1972). To these added impact events such as the discovery of a hole in the ozone layer over Antarctica in 1985 or nuclear explosions in different parts of the world, placing their own warning signals about the precarious state of the environment. Some historians even began to draw attention to the antagonism between the rational consumption of individuals and their failure to take responsibility for the environmental damage caused by resource consumption. One of the biggest problems is the ease with which this paradox is accepted; on one hand, individuals are aware of the environmental problems due to socio-economic processes and support the need for scientific and technological progress, and on the other they are unable to take responsibility for the abuses that take place on nature (Foody, 2015). Global population growth together with the rapid development throughout the 20th century at societal level, and beyond, have led to the negative impact of technologies on the environment, which in turn has affected the quality of life (Dobrovolska, 2018).

Among the first to be concerned with the causes and effects of world population growth and long-term resource consumption was Jay Forrester, professor at Massachusetts Technological University, with his paper "World Dynamics" (1971). Reference ideas also appeared in the paper "Limits to Growth" (Meadows et al., 1972), and these were aimed at the negative environmental impacts of pollution and overconsumption of natural resources that will affect global development in the 21st century. They developed a series of scenarios in the context of natural resources depletion and the limited capacity of the planet to absorb industrial and agricultural pollutants. Added to this is the increase in the world's population and capitals, which leads to the allocation of increasing amounts to solve environmental problems caused by their own impact (Kates et al., 2001; Dobrovolska, 2018). Thus, to solve the negative effects, it becomes necessary to allocate such large amounts that it is impossible to sustain industrial development (Meadows et al., 1972). The relationship between negative environmental impacts and economic expansion has become increasingly pronounced in the second half of the 20^{th} century, coupled with limited understanding of the human role in nature (Dobrovolska, 2018). Through the paper "The Limits to Growth. The 30-Year Update" written by Meadows et al. (2005) it is analysed how sustainable development issues have been addressed over the last 30 years. The results showed that many positive changes have taken place, including the establishment of new organisations and government entities, the development of new technologies, changes in the consumption habits of individuals, the conclusion of multilateral partnerships or the development of environmental education. At the same time, however, natural disasters were incurring increasing costs (Meadows et al., 2005). Awareness of humanity's inconsistent concerns became more and more widespread also with the support of the Club of Rome members, who debated the need to reorganise global economic activity since the 1970s. The debates in the international and independent Club of Rome forum brought together scientists, economists, entrepreneurs and sociologists from different organisations around the world (Roldan and Henao, 2017), and the discussions analysed the evolution of key parameters of the planet (population, natural resources, industrial food production, pollution). These led to the generation of a model to predict global behaviour, called World3, with different scenarios over the years (Weber, 2010). The study highlighted the physical limits of growth and development, and estimated a collapse of the variables analysed in 2050. Thus, with a mathematical model that simplified reality, these predictions of the effects of production and consumption on a global scale seemed devastating (Meadows et al., 1972). Global imbalances caused by over-consumption of resources were also starting to lead to widening income gaps between different social groups. As a result, solutions were aimed at linking humanity's needs with their satisfaction in order to carefully manage available natural resources (Dobrovolska, 2018). This was discussed in the context that humanity's needs were increasing as scientific and technological progress took place, while natural resources remained limited and the global population was growing. Added to this was the accelerating degradation of the environment due to deteriorating soil quality, reduced availability of drinking water, air pollution etc. Thus, the sustainable development paradigm began to take shape, being refined over a relatively long period of time. Various authors have delimited the evolution of the concept over several periods of time. Klarin (2018) was one of them and identified three stages. The first stage concerns the perception and awareness of the dangerous impact of the economy on the global environment and humanity, caused mainly by environmental pollution. This first stage began with the period when theorists such as Smith (1776) and Malthus (1789) admitted the limits of development, and goes up to the period when members of the Club of Rome warned of the negative consequences of economic development, such as pollution and over-consumption of natural resources as a result of economic development that affects human well-being. At this stage, the need for a rational economy arises and in 1972 the United Nations Conference on Human Environment is held in Stockholm, which was a landmark moment in the evolution of the sustainable development paradigm. The period following the Stockholm Conference, or second stage, includes the rapid development of 'green' technologies in developed countries. It is during this period that the sustainable development paradigm is formalised and embraced by most countries of the world (Roldan and Henao, 2017). It was also at this time that the United Nations Development Commission was set up, and towards the end of the 1980s the concept of sustainable development began to become more widely known, in particular thanks to the Brundtland Report, published in 1987. The report aimed to put forward proposals made up to that time on social inequality and inequity taking into account the intergenerational factor. The report's conclusions suggested that social and environmental problems have common causes and therefore require common solutions (Kemp, 2005). The period following the publication of the Brundtland Report, or the third stage, marks the consolidation of the concept of sustainable development at the legislative level, both nationally and internationally, as well as in business, the media and public debate. Some authors (Runnalls, 2011) claim that the sustainable development paradigm came into being as a result of conflicting interests between developed and developing economies. Thus, sustainable development would have been promoted in order to generate new economic benefits for advanced economies. In any case, pressures for a better life have encouraged globalisation, culture, technology and the creation of interdependence between developed and emerging economies (Van Kerkoff, 2014). Even if these have helped to sustain the world economy, the implications for resource depletion or environmental disasters are incalculable (Duit et al., 2010). However, the responsibility does not belong exclusively to the states (i.e. governments and large corporations), but involves a change at individual level in consumption habits, and in this respect education, management and culture play important roles in bringing change (Kajikawa, 2008).

3. FROM THE PROBLEM OF RESOURCE DEPLETION TO THE EMERGENCE OF GOVERNANCE INITIATIVES

The global economic activity depends on resources, which need to be available and accessible. Resources, mostly of non-renewable nature, represent the main component of energy production and industrial capacity (Jones et al., 2014). Water, air, land and materials (biomass - crops for food, energy, biomaterials, wood - used for industrial purposes; fossil fuels - coal, gas, oil; metals - steel, aluminum, copper, used in construction and the production of electronic devices; and non-metallic minerals - sand, for instance, used in construction) are essential in ensuring well-being and prosperity (Oberle et al., 2019). Once, however, with the increase in demand for resources (as a result of economic development, climate change and world population growth), they have become susceptible to price increases, supply shortages or export restrictions, and implicitly, they are becoming more and more rare (Qasem, 2010). From 1970 to present days, the world's population has doubled and global gross domestic product has quadrupled. These facts were also reflected in resource consumption and material extraction, which increased from 27 billion tons in 1970 to 92 billion tons in 2017, while the annual average demand for materials globally increased from 7 tons to over 12 tons per capita (Oberle et al., 2019). Undoubtedly, the widening gap between demand and supply of resources is becoming one of the most complex problems of the 21st century. If these challenges related to the finite character of resources are not addressed in a proactive and exhaustive manner, economies will stagnate and political power will suffer in the international system (Qasem, 2010). The concept of resource limitation describes a situation where the supply of resources such as water, forests, arable land and not only, is insufficient to meet demand (UNEP, 2012). With a global population of 8.3 billion people projected for the year 2030, we will need 50% more energy, 40% more water, and 35% more food (National Intelligence Council, 2012). By the year 2050, UNDESA data shows that the world population will reach a record number of more than 9.5 billion people (UNDESA, 2022).

Most of the growth will take place in low-income countries such as Pakistan, Bangladesh or Kenya, which are politically fragile. The growing demand for resources, however, also comes from developed countries, especially OECD countries (Evans, 2010). While resource scarcity is a global problem, as no nation is autonomous in terms of the resources needed for its own economy, its effects are not similar among different regions (Qasem, 2010). This is mainly attributed to the uneven distribution of the demand for resources, but also to their variation. For example, while the scarcity of energy resources is an increasingly worrisome problem for the member states of the European Union, the water resource poses fewer problems, unlike the Middle East area, which is rich in oil resources, but where it is water shortage (Qasem, 2010). As a result, in conditions where countries do not suffer from resource scarcity in equal terms, asymmetric resource dependence can be a factor of cooperation as well as one of conflict in the international system. For a few decades now, the social effects of resource scarcity have become the subject of debate (Matthew, 2008). On the one hand, there are those who say that the planet's resources cannot sustain growing consumption indefinitely. The same opinion was shared by Thomas Malthus, who in 1789 published the work "Essay on the principle of population", where he supported the idea that the force of the population is greater than the force of the planet in order to provide sustenance to humanity. Malthus argued that the discrepancy between human needs and the availability of food would lead to famine, disease and war. 150 years later, Fairfield Osborn (1948) reiterates this idea, wondering when it will be accepted that one of the main causes of dissension between nations is the reduction of productive agricultural areas, carried out simultaneously with the pressures of a growing population. Later, other authors (Meadows et al., 1972) developed the idea of resource scarcity. On the other hand, there are those who believe that the finality of resources generates innovation and technological development (Matthew, 2008). According to this vision, resources scarcity gives rise to innovative technologies that lead to the discovery of new reserves, the reduction of losses during the extraction and production phases, the development of substitutable resources, the stimulation of world trade to cover deficits, respectively the recycling of used goods. The finite nature of resources is also viewed from the perspective of the availability of resources to satisfy consumption both at the current level and at a more accelerated level, also known as the moderate perspective. Wackernagel et al. (2002) launched the concepts of "ecological footprint" and "ecological overload", and compared humanity's resource consumption with the planet's productive capacity, arguing that around 1980 humanity's demands began to exceed the Earth's regenerative capacity. The trend has continued since then and in 2022, July 28 marks the day when the consumption of Earth-generated resources exceeds the Earth's regenerative capacity (Global Footprint Network, 2022). In the past 20 years, this day has come three months earlier; this means that humanity is currently using nature 1.75 times faster than the planet's ecosystems can regenerate. In other words, while we only have one planet, we are using the resources of 1.75 planets. Currently, the extraction and processing of materials, fuels and food are responsible for approximately half of global carbon emissions, and more than 90% of the causes of biodiversity loss and water stress on the Planet (Oberle et al., 2019). If trends continue, humanity will have consumed, approximately, its oil reserves in 41 years, gas in 38 years and coal in 53 years (Jones et al., 2014). The results of international reports show that the material ecological footprint is higher in high-income regions than domestic material consumption, indicating their dependence on materials from other regions (Oberle et al., 2019). The material ecological footprint in high-income countries is 27 tons/capita/year, 60% more than the middle-income group and 13 times more than the level recorded by the low-income group. Moreover, according to a scenario outlined by the International Resource Panel (Bringezu et al., 2017), material consumption will continue to increase to 190 billion tons and to more than 18 tons/capita by 2060, unless there is a fundamental change in how material resources are used.

In response to Wackernagel's moderate perspective, the concept of "decoupling" emerged - launched by the United Nations (Oberle et al., 2019). Decoupling occurs when the resource use or the pressure on the environment either increases at a lower rate than the economic activity causing it (relative decoupling) or decreases while economic activity continues to increase (absolute decoupling). According to the decoupling concept, resource use may increase at a much lower rate than economic activity (relative resource decoupling) and environmental impacts may even decrease (absolute impact decoupling). The concept of decoupling points to an ideal goal of resource efficiency in the hopes that economic output and welfare will increase while the rates of resource use and environmental degradation will go down. The ultimate goal is that of absolute decoupling of the resource use from economic activity and well-being. The extent to which decoupling is something that can be achieved and sustained will be interesting to watch. It is certain that evaluation results (EEA, 2022; OECD, 2002) show that decoupling is found in different countries. Even so, decoupling entails serious challenges for a number of high environmental pressures, such as climate change, pollution or air quality. Governance plays an important role in ensuring the management, ownership, allocation, use and protection of resources. It is facilitated through institutions, policies and processes. Weak governance involves insufficiently strong laws - that marginalise certain groups, produce unequal distribution of development benefits and burdens, and pertain a lack of transparency in decision-making (UNEP, 2012). Despite the development of the governance concept, to date there is no universally accepted set of actors with the capacity to address the issue of resource finality (Matthew, 2008). Thus, states/governments are being considered in this respect, together with other regional or international organisations such as the European Union (EU), the United Nations (UN), non-profit organisations or corporations. However, the awareness of resources finality has led to the creation of initiatives and partnerships that contribute with their expertise to preventing potential conflicts over resources. Among the most notable are initiatives of the United Nations or the European Union, but efforts are also being made by non-profit organisations, among others. The concept of sustainable development has been refined over time, including through a series of events held at the initiative of international organizations (Table 1). From the first International Air Pollution Conference in 1955 to the present day, global events on sustainable development have contributed to increasing understanding and awareness, making commitments, charting development directions, setting targets, and more. The series of international events culminated with the UN General Assembly Summit in 2015, when the 2030 Agenda for Sustainable Development was launched.

Table following on the next page

Event	The role of the event in shaping sustainable development
First International Air Pollution Conference (1955)	Organised in response to rising death rates (in large cities) due to air pollution.
UN General Meeting (1962)	It has helped increasing the level of understanding that rapid economic development has a negative impact on the environment (and that environmental conservation measures are needed).
The Club of Rome Report (1972)	Publication of results on the effects of population growth and long-term material consumption.
UN Conference on Environmental Problems (1972)	Adoption of the Stockholm Declaration with the 26 principles of the international environmental protection system.
UN General Meeting (1972)	Creation of the UN Environment Programme.
World Commission on Environment and Development (1987)	Publication of the Brundtland Report, where the concept of sustainable development is mentioned for the first time in official documents.
UN Rio de Janeiro Conference (1992)	Adoption of "Agenda 21", which urges countries to develop sustainable development indicators; contains 27 principles of sustainable development
Kyoto Convention (1997)	Adoption of the Kyoto Protocol - the first global environmental treaty based on the emissions trading mechanism.
New York Millennium Declaration (2000)	Launch of the Millennium Development Goals.
World Summit on Sustainable Development in Johannesburg (2002)	Adoption of the Johannesburg Declaration on Sustainable Development, in which Alternative Development Partnerships took shape, facilitating the inclusion of private and other actors in the management of sustainable development.
UNEP Green Economy Initiative (2008)	Directing the global economy towards investment in 'green' technologies.
UNEP Report "Towards a Green Economy: The Road to Sustainable Development and Poverty Eradication" (2011)	Defining the concept of "green economy" and outlining priority development directions.
UN Conference on Sustainable Development in Rio de Janeiro "Rio+20" (2012)	Adoption of the Declaration "The Future We Want".
UN Climate Change Conference in Paris (2015)	Adoption of the Paris Agreement under the UNFCCC; Development of a guide for action to reduce emissions and strengthen resilience to climate change. It replaces the Kyoto Protocol.
UN General Meeting Summit (2015)	Adoption of the 2030 Agenda, which contains 17 Sustainable Development Goals and 169 targets.

Table 1: Key milestones in sustainable development
(Source: Own adaptation)

As of 2015, in a historic decision, the UN made a call to action in a series of areas of importance to humanity and the planet - to all countries and stakeholders - launched as the 2030 Agenda for Sustainable Development. It has an implementation horizon of 15 years and is to be achieved through 17 Sustainable Development Goals (SDGs). Broadly speaking, the 2030 Agenda aims to achieve sustainable development through its three dimensions - economic, social and environmental - in an integrated and balanced manner. As a result, it aims to end hunger and poverty in all corners of the world by 2030, protect human rights and support gender equality by empowering women, provide lasting protection for the planet and its resources, and create the necessary circumstances for sustainable and inclusive economic growth, prosperity and decent work, all at particular levels of national development (United Nations, 2015). The goals of the Agenda are universal, applicable to all countries, integrated, interconnected and indivisible, their solution requiring integrated solutions. They are the result of extensive (public and not only) consultation, and build on UN conferences and summits that have focused on sustainable development. The EU supports the sustainable development process by monitoring and reporting on the progress of the SDGs in the EU context. The quantitative assessment model used in this respect is aligned to the list of global indicators, but is not identical to the model proposed by the UN, being adapted to policies and phenomena relevant to the European context (Eurostat, 2019).

4. CONCLUSION

The consequences of progress began to draw attention from the early days, but it was in the 1950s and 1960s, that a strong environmental motion was triggered in response to the harmful effects of economic production on the environment. Subsequently, various initiatives focused on social welfare began to emerge. The attention to environmental issues was stimulated by two events in 1972: (1) the publication of the Club of Rome's "Limits to Growth" report, inspired by Malthus' vision of resource limitation on the one hand and growing population on the other, and (2) the UN Stockholm "Conference on the Human Environment", where participants agreed that economic development and environmental development must be managed in a mutually beneficial way. These two landmark events helped in raising the awareness of environmental issues and brought them to the global stage. The report of the UN Commission on Environment and Development - also known as the Brundtland Report - brought international recognition to the concept of sustainable development. It introduced new concerns into the sphere of sustainable development, going beyond environmental issues to include social issues at both national and international level.

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SOCIALLY AND ENVIRONMENTALLY RESPONSIBLE BUSINESS PRACTICES IN SMES: A CASE STUDY OF CROATIA

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ABSTRACT
Companies implement active measures for social and environmental activities as part of their business operations. To improve their sustainable business practices, emphasis has been placed on a strategy that combines positive environmental and social impacts with long-term profitability. At the EU level, large companies are required to report on their sustainable practices. There are EU plans to extend this obligation to a wider range of companies, including some SMEs. SMEs are already improving their social and environmental business practices, which is reflected in their strategy or action plan. By implementing sustainable strategies, SMEs can achieve a number of synergistic effects as well as systemic benefits for the common good. The purpose of this paper is to investigate whether there is a difference in environmental and social sustainability between SMEs that have a strategy or action plan to become a sustainable company and those that do not. The research was conducted with 482 Croatian SMEs, using descriptive statistics and an independent samples t-test to identify significant differences. The results of this study show that SMEs that do not implement a sustainable business practices strategy or action plan do not differ statistically significantly in their active implementation of environmental and social measures from SMEs that implement a sustainable business practices strategy or action plan. According to these results, Croatian SMEs need to work on the quality and implementation of environmental and social strategies in order to adopt more sustainability measures and achieve a positive impact on society and the environment, rather than implementing strategies just for the sake of form.
Keywords: *Croatian SMEs, responsible business, sustainability, sustainability strategy*

1. INTRODUCTION

Micro, small, and medium-sized enterprises (SMEs), as well as large enterprises, must operate in a complex environment influenced by societal values, environmental issues and goals, stakeholder interests, etc. In order to manage enterprises (companies) as successfully as possible in such a complex environment, various initiatives are being developed. The efforts of numerous international initiatives encourage companies to improve their social and environmental practices as well as their voluntary cooperation with stakeholders (Ruževičius and Serafinas, 2007). Corporate social responsibility (CSR) is a concept that involves working closely with stakeholders to integrate social, environmental, ethical, human rights, and consumer issues into business operations and core strategy (European Commission, 2011). Responsible, sustainable companies have a "whole company" perspective in which social and environmental principles are woven into corporate strategy and success (Ryan et al., 2010). Therefore, some companies focus their business on either social or/and environmental entrepreneurship. The results of the company's social and environmental actions are presented in its CSR reports/non-financial reports/sustainability reports. The European Union has introduced the obligation for this type of reports, which is set out in Directive 2014/95/EU of the European Parliament and of the Council. The obligation to disclose a non-financial information (social and environmental) should apply only to large companies, large companies that are public interest entities and to public interest entities that are parent companies of large groups, each of which has an average number of employees exceeding 500.

SMEs should be exempt from additional requirements (European Parliament, 2014). The Commission adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD) on April 21, 2021, which would amend the current reporting requirements of the NFRD. Under this proposal, the non-financial reporting obligation was extended to all large companies and all companies listed on regulated markets. With the exception of SMEs whose securities are listed on regulated markets, the proposal would not impose new reporting requirements on small companies (European Commission, 2022). The Commission proposes to create separate, proportionate rules for SMEs. They would simplify the reporting of information by SMEs to banks, clients operating large companies, and other stakeholders. They can help SMEs participate fully in the transition to a sustainable economy (European Commission, 2021). This means that in the near future, all SMEs will be required to produce some kind of report outlining their social and environmental business practices. SMEs are already improving their social and environmental business practices, which is reflected in their strategy or action plan. The inclusion of social and environmental actions and relationships with other companies in the development of strategies led to the preparation of non-financial reports (Krawczyk, 2021). It follows that the strategy or action plan to become a sustainable company is a transitional step for non-financial reports for SMEs. Therefore, non-financial reporting should be part of the process of developing a business strategy (Krištofík et al, 2016). With this in mind, the purpose of this paper is to investigate, based on the Flash Eurobarometer Survey 486, whether SMEs have a strategy to become a sustainable business and whether there is a difference in environmental and social sustainability actions between SMEs that have a strategy or action plan to become a sustainable company and those that do not. The survey targets SMEs in Croatia with the aim of gaining insight into the readiness of SMEs to undertake social and environmental actions and to adopt and implement sustainability strategies. The structure of this overview study is as follows. After the introduction, the second section reviews the literature on SMEs, sustainability strategies and sustainability actions. The third section provides a description of the sample and the main methods used for the study. The results are presented in the fourth section. The conclusions and suggestions for further research can be found in the last section.

2. LITERATURE REVIEW

Corporate strategy represents a way to achieve the set goal, taking into account the opportunities and threats from the environment, as well as the competencies and resources of companies. To implement sustainability actions, companies should have an appropriate business strategy (Prabawani, 2013). A business strategy that focuses on sustainable actions is called a sustainability strategy. It represents the integration of environmental and social goals into a company's goals, actions, and planning to create long-term value for the company, its stakeholders, and society in general (Long, 2020). Integrating sustainability strategy into a company's operations has many benefits: Achieving a high level of performance, both non-financial and financial (Guadamillas-Gómez et al., 2010); competitive advantages (Lloret, 2016); positive relationships with stakeholders (Kimanzi and Gamede, 2020). SMEs can also benefit from social and environmental responsibility, as the size of the company does not directly influence how CSR is implemented (Krawczyk, 2021). Companies of all sizes, whether SMEs or large enterprises, need to allocate resources to develop a new CSR strategy. Again, for SMEs in particular, there is a conflict between short-term profitability and profit and long-term sustainability. SMEs may not have the resources to consider long-term sustainability goals. It may be difficult for SMEs to implement a CSR strategy because they lack the resources (Knudson, 2016; Grimstad et al., 2020).

Because SMEs are small businesses (< 250 employees), they may not individually have a large impact on social and environmental actions, but according to Lawrence et al. (2006), collectively they have a significant impact on the economy and the social and natural environment. SMEs account for 99.8% of all enterprises in the EU in 2020 (Muller et al., 2021) and are essential for value creation in all sectors of the EU economy. They are a cornerstone of the European economy and the global value chain and thus key players in the difficult transition to sustainability (Perrini et al., 2022). Therefore, the European Commission supports them in their transition to sustainability through a better understanding of social and environmental laws, regulations, standards and other criteria, CSR plans, reports, etc. This has a positive impact on CSR development in SMEs, as Belas et al. (2021) show, based on a sample of Central European SMEs, that the most important CSR indicator that has a favorable impact on all aspects of SME sustainability is the understanding of the CSR concept and its enforcement in companies. As a member of the EU, Croatia adopts the EU decisions and directives and thus all measures and activities related to SMEs and their development. SMEs are extremely important for Croatia, as they represent 99.7% of the total number of enterprises (Alpeza et al., 2022). Some studies have examined Croatian SMEs and their CSR practices. Koričan and Jelavić (2008) found that SMEs in Croatia need to become more aware of the importance of CSR and should implement more CSR-related actions. Vranešević and Vranešević (2015) concluded that CSR and brand management help companies to compete and succeed in the market, as shown by the case of Croatian SMEs. Pekanov Starčević et al. (2017) study green businesses and green markets in Croatia and find that in the context of environmental activities, there is a greater willingness to include green products or services in the product range of SMEs in Croatia (n=502). Stipić (2019) examines how CSR strategy is represented in 127 SMEs in Croatia. She concludes that SMEs in the sample focus on operational and financial aspects of the business, while they implement business strategies in all CSR dimensions. According to the results of the study conducted by Jelačić et al. (2021) on Croatian and Slovenian SMEs in wood processing and furniture manufacturing, the management model can help SMEs, especially micro and small enterprises, improve their decision-making process, implement necessary innovations more easily and quickly, and maintain sustainable business and production management systems in their companies. The studies conducted show that there is a lack of research on CSR actions and strategies. More detailed research is needed to investigate the application of social and environmental actions in Croatian SMEs, the implementation of the sustainability strategy and whether SMEs differ in their social and environmental actions in relation to the implementation of the sustainability strategy. After a review of previous studies and the purpose of the study, the author developed the following hypotheses:

- H_{0a}... Croatian SMEs do not differ in their active implementation of social measures from SMEs implementing a strategy or action plan for sustainable business practices.
- H_{1a}... Croatian SMEs differ in their active implementation of social measures from SMEs implementing a strategy or action plan for sustainable business practices.
- H_{0b}... Croatian SMEs do not differ in their active implementation of environmental measures from SMEs implementing a strategy or action plan for sustainable business practices.
- H_{1b}... Croatian SMEs differ in their active implementation of environmental measures from SMEs implementing a strategy or action plan for sustainable business practices.

3. METHODOLOGY

Since 1970, Eurobarometer has conducted a series of Europe-wide surveys on behalf of the European Commission on European integration, politics, institutions, social conditions, health, culture, the economy, citizenship, security, information technology, the environment and other topics.

The scope of the Flash surveys is either reduced or expanded depending on the topic, but occasionally they are conducted in all EU member states. Flash Eurobarometer 486 (FL486) with the survey name: SMEs, Start-ups, Scale-ups and Entrepreneurship was conducted by the European Commission (2020) from February 19 to May 5, 2020. The survey was conducted in a total of 39 countries (EU27 and 12 non-EU countries). Responses were collected through telephone interviews with employees in large companies and SMEs (N = 16,365). The majority of interviews were completed before the breakthrough of COVID-19. The study provides an overview of the barriers and challenges faced by European SMEs in the transition to sustainable business models and digitalization. The dataset was downloaded from the GESIS data archive. For the purpose of this study, only Croatian SMEs were analysed (n = 482). Table 1 provides an overview of the key characteristics of the analysed SMEs.

Sector of activity (NACE category)	n	%
Manufacturing, mining and quarrying and other industry (B, C, D, E)	138	28.7
Construction (F)	25	5.2
Wholesale and retail trade, transportation and storage, accommodation and food service activities (G, H, I)	194	40.2
Information and communication (J)	26	5.4
Financial and insurance activities (K)	2	.4
Real estate activities (L)	5	1.0
Professional, scientific, technical, administration and support service activities (M, N)	80	16.6
Public administration, defence, education, human health and social work activities (O, P, Q)	11	2.3
Arts, entertainment and recreation	1	.2
Total	482	100.0

What was the annual turnover of your enterprise in 2019?	n	%
100,000 € or less	37	7.7
More than 100,000 and up to 500,000 €	88	18.3
More than 500,000 and up to 1 million €	47	9.8
More than 1 million and up to 2 million €	39	8.1
More than 2 million and up to 5 million €	30	6.2
More than 5 million and up to 10 million €	17	3.5
More than 10 million and up to 50 million €	17	3.5
More than 50 million €	3	.6
DKN/A*	204	42.3
Total	482	100.0

Number of employees	n	%
1 to 9 employees	312	64.7
10 to 49 employees	106	22.0
50 to 249 employees	64	13.3
Total	482	100.0

Rate your business environment in terms of availability of support to help enterprises become more sustainable?	n	%
Very good	45	9.3
Fairly good	149	30.9
Fairly poor	151	31.3
Very poor	81	16.8
DK/NA*	56	11.6
Total	482	100.0

**DK/NA – do not know/no answer*

Table 1: Sample description

(Source: author)

Looking at the number of employees, it is clear that the largest part of the SMEs structure is accounted for by small enterprises (64.7%). SMEs mostly have an annual turnover between 100,000 and 500,000 euros. Most of the companies are involved in wholesale and retail trade, transportation and storage, accommodation and food service activities (40.2%) and 28.7% of the studied companies belong to the manufacturing, mining and quarrying and other industry. A very good availability of support to help companies become sustainable has 9.3% of companies and a fairly good one has 30.9%. It is worrying that 48% of SMEs have fairly poor and very poor availability of support to help SMEs become sustainable, meaning that their business environment is not making sufficient efforts or providing sufficient resources to help businesses become sustainable. Flash Eurobarometer Survey 486 addresses demographic issues as well as topics related to responsible business and digitalization. Given the purpose of this study, in addition to the demographic issues described above, only issues related to corporate social and environmental actions were analyzed: environmental and social innovation (Q19), environmental and social sustainability (Q24), strategy or action plan to become a sustainable company (Q25). The research hypotheses were tested using descriptive statistics and a t-test for independent samples. Descriptive statistics and an independent samples t-test were performed using statistical software for social sciences IBM SPSS 25.0. The independent samples t-test is a parametric test that determines whether the means of the two groups are significantly different. It was used to test whether there is a difference in environmental and social sustainability actions between SMEs that have a sustainable business practices strategy or action plan to become a sustainable company and those that do not.

4. RESULTS

To test the established research hypotheses, it was necessary to identify and separate social and environmental actions. The classified social and environmental actions and their representation in the companies are shown in Figure 1.

Figure following on the next page

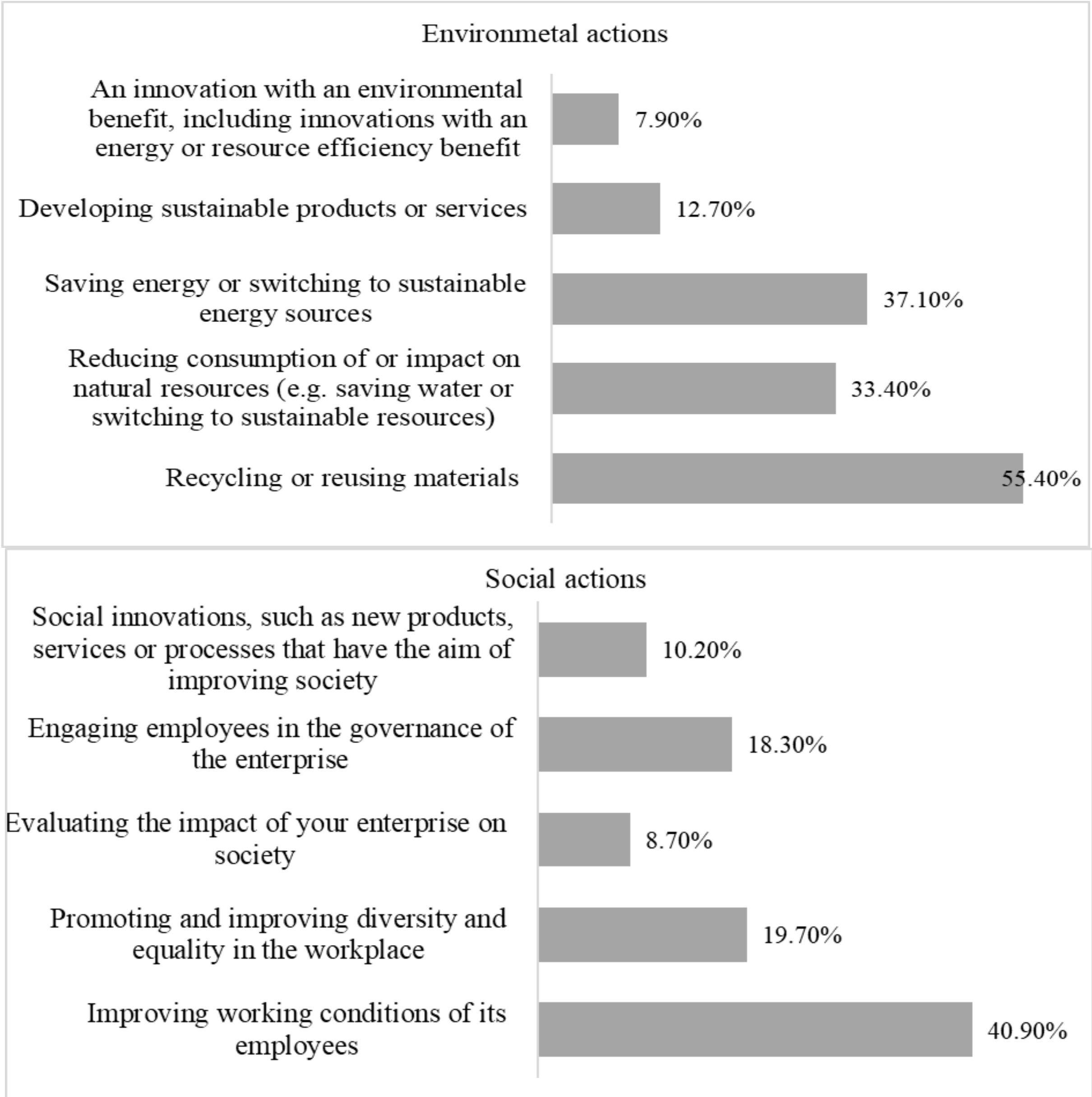

Figure 3: Social and environmental actions
(Source: author)

The most represented environmental action is the recycling or reuse of materials, carried out by more than half of SMEs (55.40%). Improving the working conditions of their employees (40.90%) is the most represented social action in SMEs. Social and environmental innovations are the least common sustainability actions actively implemented by SMEs. Compared to environmental innovations, social innovations are actively implemented by 2.30% more companies. Three variables were constructed to test the hypotheses (two dependent and one independent). The dependent variables represent the sum of social actions (var_social) and the sum of environmental actions (va3_environmental). The independent variable is var_strategy, with which two independent groups are observed:

- 1 - SMEs that have a strategy or action plan to become a sustainable company.
- 2 - SMEs that do not have a strategy or action plan to become a sustainable company.

The first group includes the SMEs that have already implemented a strategy or action plan and those whose strategy or action plan is being implemented.

The second group includes the SMEs that do not yet have a strategy or action plan but are considering doing so in the future, and the SMEs that do not yet have a strategy or action plan and will not do so in the future. The results of group statistics and the independent samples t-test are shown in Table 2.

Group Statistics

	Strategy or action plan	n	Mean	Std. Deviation	Std. Error Mean
var_social	Yes	166	1.5361	1.34228	.10418
	No	288	.8472	1.00743	.05936
var_environmental	Yes	166	1.8795	1.34297	.10423
	No	288	1.2535	1.04681	.06168

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
var_social	Equal variances assumed	26.549	.000	6.195	452	.000	.68892	.11120	.47039	.90746
	Equal variances not assumed			5.745	272.993	.000	.68892	.11991	.45286	.92498
var_enviro-nmental	Equal variances assumed	14.961	.000	5.521	452	.000	.62605	.11340	.40319	.84890
	Equal variances not assumed			5.169	280.989	.000	.62605	.12112	.38763	.86446

Table 2: Results of Independent Samples t-test
(Source: author)

A strategy or action plan to become a sustainable company, i.e. to combine long-term success and profitability with a positive impact on society and the environment, was held by 34.44% of Croatian SMEs, while 59.75% had no such strategy or action plan. Considering the increasing changes in the viability of companies, it is worrying that most companies do not have a strategy or action plan to implement sustainable actions to improve the sustainability of their business. The results of the independent t-test show that at 5% significance level, the set null hypothesis H_{0a} ($t_{272.993}$=5.745, p>0.05) is not rejected. The set null hypothesis H_{0b} ($t_{280.989}$ = 5.169, p>0.05) is also not rejected at the same significance level. Based on the results of the statistical test, it was sufficiently demonstrated that SMEs that do not implement a sustainable business practices strategy or action plan do not differ statistically significantly in their active implementation of environmental and social measures from SMEs that implement a sustainable business practices strategy or action plan.

5. CONCLUSION

Socially and environmentally responsible business practices in SMEs are developing. The EU promotes the development of SME activities with a focus on sustainable development. As an important part of the European economy (99% of all companies in the EU), SMEs play a crucial role in the arduous transition to a sustainable environment. Therefore, this paper examined the implementation of the sustainable business practices strategy or action plan in Croatian SMEs.

Given the low percentage of companies that have a sustainable business practices strategy or action plan, it is clear that this development is slow. There is no significant difference in the active implementation of environmental and social actions by SMEs that have a sustainable business practices strategy or action plan and those that do not, indicating the low quality of existing strategies or action plans. In light of this, Croatian SMEs need to work on the quality and implementation of strategies and social actions in order to adopt sustainability actions and achieve positive environmental and social impacts, rather than implementing strategies just for the sake of form. The results of the strategies need to be measurable and visible to enable benchmarking of SMEs. Croatian SMEs should take this into account, as the presentation of their socially and environmentally responsible business practices in the form of sustainability reports will be mandatory in the near future. Due to their flexible business operations, SMEs have the potential to react quickly and take sustainable actions. This is possible through systematic management of activities, and adoption and implementation of the sustainability strategy is the first step towards this. Although this study is extremely useful for Croatian SMEs, the author recommends that this study be replicated in all SMEs in the EU. It is also suggested to study the difference between SMEs and large companies in initiating social and environmental actions in order to determine whether the lack of distinction is characteristic only for SMEs or if it is also common in large companies.

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GREEN AND DIGITAL TRANSITION IN THE FUNCTION OF GROWTH AND DEVELOPMENT OF CROATIA

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ABSTRACT

The aim of this paper is to give literature in-depth review about Green and digital transition in the EU and situation regarding potentials in Croatia. On a base of this analysis autor will present information regarding Green and digital regulatory frame in EU and Croatia as well as position of Croatia regarding adoption of EU Green and digital incentives. The special part will address the issue of strategic goals: Ecological and energy transition for climate neutrality, food self-sufficiency and bioeconomy development, sustainable mobility, digital transition of society and economy waste. On a base of this results autor will contribute the knowledge regarding Green and digital transition and offer recommendations for a better transition in Croatia.The author will use the following methods in this paper: descriptive research method, deductive research method, analysis method and compilation method.The author will use secondary data for the purpose of writing this paper. Expected / obtained results will be visible by detecting the absolute amount of approved funds in accordance with previously defined priority areas, the number of approved projects within priority areas and NUTS regions, the impact of project proposals on strengthening productivity of project promoters and their partners (projection of increased export revenues in the year m + 2, projection of net number of jobs as a result of implementation of project activities in year m + 2, projection of increase in sales revenue in year m + 2).

Keywords: *green and digital transition, potentials, economic growth, Croatia*

1. INTRODUCTION

The current economic model is linear. It takes energy or materials, transforms them into goods or services, and then passes them to businesses or consumers who use them. The outcome is financial gain for the agents involved, but the original resources disappear and waste is generated as a byproduct. Take-make-waste is not a sustainable model because economic growth is outpacing available resources while the constant depletion of non-renewable energy sources leads to natural, economic and social breakdown. According to the OECD and the World Bank, global consumption of materials (biomass, fossil fuels, metals and minerals) is expected to double over the next 40 years and annual waste production will be increase by 70% until 2050. Resource extraction and processing are responsible for 50% of greenhouse gas emissions and more than 90% of biodiversity loss and water scarcity (OECD, 2013). Aware of limited resources, the effects of global economic crises, the impact of the COVID-19 pandemic, the current political and war escalation between Ukraine and Russia, market instability,

disruptions in the energy distribution chain; In this crucial period, the European Union needs to strive even more for its own energy neutrality and clean energy[1]. In accordance with the defined goals and priorities of the Europe 2030 strategy and the Europe 2050 strategy, the Member States of the European Union need to make a stronger and faster green and digital transition, all in order to reduce the period of achieving defined priorities and goals for further sustainable development of Europe. The subject of this paper is to bring readers closer to the phase of green and digital transition in the Republic of Croatia, all in line with the goals set in the previous Europe 2020 strategy and the current Europe 2030 strategy and to point out on the future steps which shoud be taken by the European Union. The primary objectives defined by the Europe 2020 Strategy were focused on: employment, research and development, climate change / energy, education, social inclusion and poverty reduction. The Europe 2020 strategy tried to promote three priorities; growth that is smart - by investing more effectively in education, research and innovation, sustainable - thanks to a resolute shift towards a low-carbon economy and inclusive - by placing great emphasis on job creation and poverty reduction (European Commission, 2010). Namely, Europe 2020 strategy was aimed at undertaking activities at the level of the EU and individual members in accordance with the defined own national goals and objectives. The realization of certain strategic activities at the national level, based on the conducted calls, will be analyzed in this paper primarily on the example of the Republic of Croatia in the chapter: The effects of digital and green transition on the economy of the Republic of Croatia. The Europe 2030 strategy aims to achieve the following general objectives: a framework for energy and climate policy and energy and a green deal plan.
2030 climate and energy framework - existing ambition key targets for 2030:
1) At least 40% cuts in greenhouse gas emissions (from 1990 levels)
2) At least 32% share for renewable energy
3) At least 32.5% improvement in energy efficiency (European Commission 2020).

The production and use of energy account for more than 75% of the EU's greenhouse gas emissions. Decarbonising the EU's energy system is therefore critical to reach our 2030 climate objectives and the EU's long-term strategy of achieving carbon neutrality by 2050.
The European Green Deal focuses on three key principles for the clean energy transition, which will help reduce greenhouse gas emissions and enhance the quality of life of our citizens:
1) ensuring a secure and affordable EU energy supply
2) developing a fully integrated, interconnected and digitalised EU energy market
3) prioritising energy efficiency, improving the energy performance of our buildings and developing a power sector based largely on renewable sources

The Commission's main objectives to achieve this are:
- build interconnected energy systems and better integrated grids to support renewable energy sources
- promote innovative technologies and modern infrastructure
- boost energy efficiency and eco-design of products
- decarbonise the gas sector and promote smart integration across sectors
- empower consumers and help EU countries to tackle energy poverty
- promote EU energy standards and technologies at global level
- develop the full potential of Europe's offshore wind energy (European Commission, 2020).

1 Clean energy is crucial for the sustainable future of the European Union; sustainable production, storage and consumption of energy minimizes the impact on the environment and health.

In accordance with the National Development Strategy of the Republic of Croatia until 2030, the Government of the Republic of Croatia, in cooperation with stakeholders, has set four strategic development directions and thirteen strategic goals.

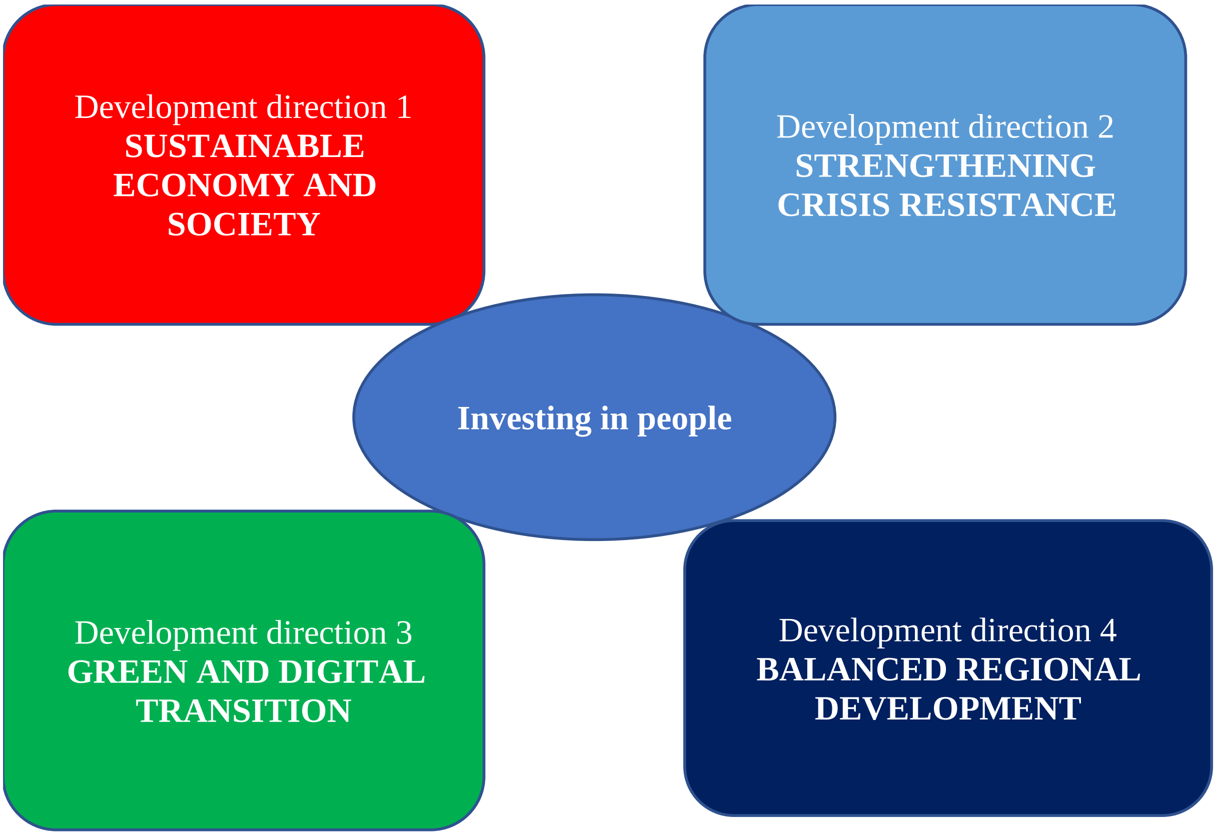


Figure 1: Strategic determinants of development and development directions of Croatia until 2030.
(Source: author processed and adjusted to the data available at: https://narodne-novine.nn.hr/clanci/sluzbeni/2021_02_13_230.html (accessed 01.03.2022.))

According to Figure 1. Strategic determinants of development and development directions of Croatia until 2030, the Government of the Republic of Croatia and the competent institutions have set four strategic development directions and thirteen strategic goals.

Development direction 1. Sustainable economy and society:
- SG[2] 1. Competitive and innovative economy
- SG 2. Educated and employed people
- SG 3. Efficient and efficient judiciary, public administration and management of state property
- SG 4. Global recognition and strengthening of Croatia's international position and role

Development direction 2. Strengthening resilience to crises:
- SG 5. Healthy, active and quality life
- SG 6. Demographic revitalization and better position of the family
- SG 7. Security for sustainable development

2 SC – Strategic goal

Direction of development 3. Green and digital transition:
- SG 8. Ecological and energy transition for climate neutrality
- SG 9. Food self-sufficiency and bioeconomy development
- SG 10. Sustainable mobility
- SG 11. Digital transition of society and economy

Development direction 4. Balanced regional development:
- SC 12. Development of assisted areas and areas with development specifics
- SC 13. Strengthening regional competitiveness (Narodne novine 13/2021.)

Within this paper, the author will explicitly focus on strateg goals; development direction 3. Green and digital transition[3].

2. LITERATUR REWIE

The need for the world's decarbonization —thus the need of a global energy transition—has become to appear globally in the 1990 following the 1992 "Earth Summit" in Rio de Janeiro and the 1997 Kyoto Protocol, which set the international framework for the world's climate agenda. Since then, climate change—thus energy issues—has gained more and more relevance in the global (and European) political agenda (Hafner &Raimondi, 2020, p.p. 374-389.). According to the Paris Agreement, the goal is to limit global warming to well below 2, preferably 1.5 degrees Celsius compared to pre-industrial levels. The EU was the first major economy to submit its emissions reduction target under the Paris Agreement. It committed to reduce its CO2 emissions by 40% from 1990 levels by 2030 (European Parliament, 2019). The green growth discourse was initiated by international organizations, mainly by the United Nations, OECD, and World Bank, before it was endorsed by the EU. The concept of green growth was coined during the Fifth Ministerial Conference on Environment and Development (MCED) held in March 2005 in Seoul, when fifty-two governments from Asia and the Pacific agreed to pursue a path of "green growth". Since then green growth has been the most widely accepted solution to stop the degradation of the natural environment. During that conference, the United Nations Economic and Social Commission for Asia and the Pacific articulated its commitment to environment-friendly GDP growth, making green growth the solution to the ecological crisis and the model of sustainable development. In 2008, the UN Environment-led Green Economy Initiative was launched, through which the UN offers a platform for its members for moving towards a green economy. (Ossewaarde & Ossewaarde, 2020, p.p. 1-15.) The European Green Plan is a growth strategy that seeks to transform the EU into a just and prosperous society with a modern, resource-efficient and competitive economy in which there will be no net greenhouse gas emissions in 2050 and in which economic growth is not a resource-intensive (United Nations, 2015). The Green Plan is an integral part of the Commission's strategy to implement the United Nations 2030 Program and Sustainable Development Goals[4], as well as other priorities announced in President Ursula von der Leyen's policy guidelines.

3 Croatia will be among Europe's leaders in turning climate and environmental challenges into opportunities, ensuring a fair and inclusive transition to climate neutrality.
The green and digital transition will be achieved by switching to cleaner and more affordable energy, encouraging green and blue investments, decarbonizing buildings, developing the circular economy, strengthening self-sufficiency in food production, developing the bioeconomy and preserving and restoring ecosystems and biodiversity.
Croatia will become a leader in the green economy and the introduction of cleaner, cheaper and healthier forms of transport by promoting a safe and sustainable transport policy. It will invest in digital infrastructure and encourage the introduction of digital solutions in the interests of citizens and the Croatian economy, which will contribute to building the digital future of Europe. (Narodne novine 13/2021)

4https://www.cece.eu/news/political-guidelines-of-ursula-von-der-leyen-for-the-next-european-commission-2019-2024 (accessed January15 2022.)

The Commission's Green Plan will refocus the European Semester macroeconomic coordination process to integrate the UN Sustainable Development Goals, put sustainability and citizens' well-being at the heart of economic policy, and put the Sustainable Development Goals at the heart of EU policy decisions and actions. The Green Plan is an integral part of the Commission's strategy for the implementation of the United Nations Program to 2030 and the Sustainable development goals and other priorities announced in the political guidelines of president of the European Comisson Ursula von der Leyen's. The European Commission will with the Green Plan redirect the macroeconomic coordination process within the European Semester to integrate the United Nations Sustainable Development Goals and placed the sustainability and well-being of citizens at the heart of economic policy and sustainable development goals at the heart of EU policy-making and action. The first reasonable definition of the “Green New Deal” was the idea that with "green" (clean and sustainable) technologies and products, a thorough structural change of the global economy that could prevent dangerous climate change and mitigate the consequences of climate change (Thomas, 2008). The concept of the Green New Deal was formulated on the basis of a figurative rhetorical question: "Do we want to justify overcoming the crisis by reviving the existing 'brown' global economy, or do we want to promote global revitalization toward a 'green' economy that avoids ecological damage in the first place?" (Barber, 2010).

3. RESEARCH METHODS

Appropriate scientific methods (inductive and deductive method, abstraction method, descriptive method, descriptive statistics, and sampling method) were applied to achieve high quality analysis of a given topic and to increase knowledge about the research topic. The paper discusses theoretical issues; therefore, the predominant research method is the study of professional and scientific literature on energy resources and digital transformation. In addition, the two calls were analyzed by autor: Improving the competitiveness and efficiency of SMEs through information and communication technologies (ICT) - 2, CC.03.2.1.19 and Strengthening Business Competitiveness by Investing in Digital and Green Transformation, CC.11.1.1.01.

4. ENERGY AND DIGITAL TRANSFORMATION IN THE REPUBLIC OF CROATIA

The concept of energy development of Croatia must be based on new and clean technologies, innovations and research in order to contribute to the increase of the quality of life and to ensure the necessary transformation of the economy[5]. With the funds from the "EU of the Next Generation" instrument, the Republic of Croatia has 9.15 billion euros for regional development and cohesion policy in this seven-year period. If we compare the available funds with the total GDP of the Republic of Croatia from 2021, it amounts to 2.2% of the Croatian GDP[6]. These financial resources will be the engine for the accelerated development of the Republic of Croatia, providing it with an important aspect for further growth, thanks to the green transition. Strategic reforms and transformations in the Republic of Croatia will be carried out in the course of the National Development Strategy, which will be both the framework and the umbrella document for Croatia's further growth and development in this decade. The strategy defines the vision of the future development of Croatia, taking into account the expected global and, in particular, European trends, the efforts we need to make to address the consequences of the pandemic and the earthquake[7]. The new situation in terms of sustainable energy supply, caused by the war and political escalation between Ukraine and Russia, will require acceleration of the

5 https://vlada.gov.hr/vijesti/ovo-je-desetljece-digitalne-i-zelene-transformacije-hrvatske-uz-nikad-veci-iznos-eu-sredstava-na-raspolaganju/31378 (accessed 08 February 2022.)

6 https://www.hnb.hr/statistika/glavni-makroekonomski-indikatori (accessed 23 March 2022.)

7 https://vlada.gov.hr/vijesti/ovo-je-desetljece-digitalne-i-zelene-transformacije-hrvatske-uz-nikad-veci-iznos-eu-sredstava-na-raspolaganju/31378 (accessed 08 February 2022.)

energy transition with the previously defined scenarios of the Strategy. At its 71st session on July 29, 2021, the Government of the Republic of Croatia adopted the Decision on the Initiation of the Procedure for the Preparation of the Strategy for Digital Croatia for the Period until 2030. Digitization, as one of the public policy priorities, is a key element of all departments, and strong coordination and a clear plan and vision are needed to build a strong digitised public administration, a digitised economy, and a digital society of citizens. The Strategy will address the need to consider existing standards, best practices, and design principles when developing new services, systems, and platforms. The strategy will include strategic goals and priorities that will form the basis for defining actions in the following areas to create a systematic approach to digitization:

- Digital transformation of the economy
- Digitization of public administration and the judiciary
- Development of broadband communication networks
- Development of digital skills and digital jobs

The process of transforming the economy of the European Union, all its member states, for a sustainable future requires the implementation of the elements of the European Green Plan, but also their necessary modification with accelerated transformation, due to the new situation between Ukraine and Russia.

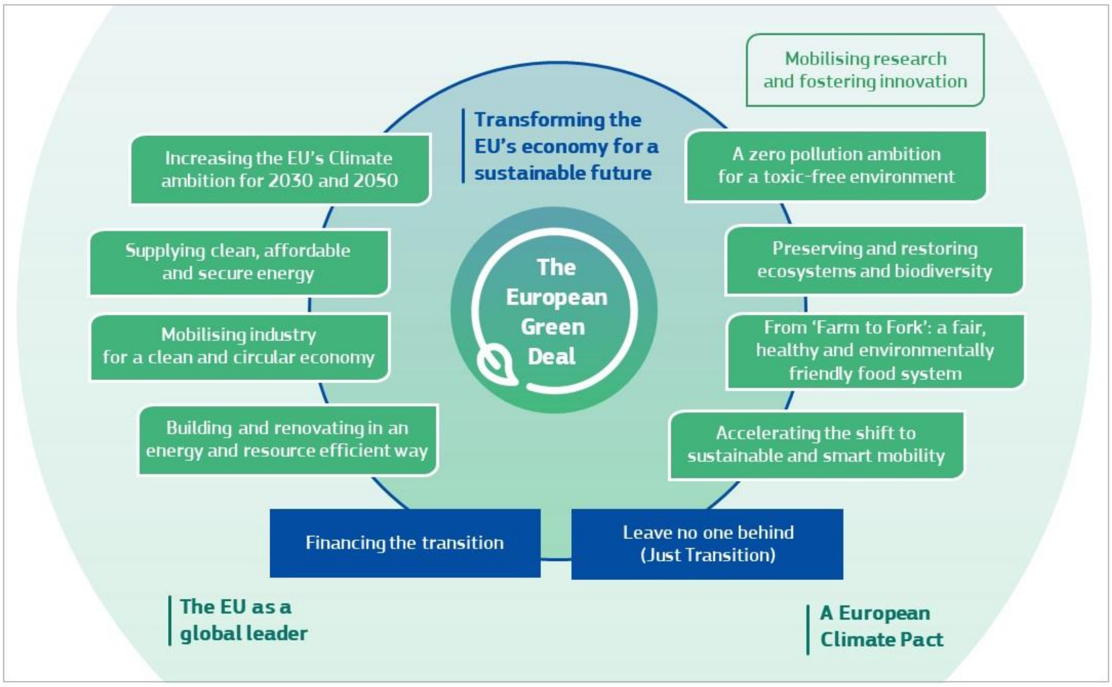


Figure 2: The European Green Deal
(Source: https://eur-lex.europa.eu/legal-content/HR/TXT/DOC/?uri=CELEX:52019DC0640&from=EN (accessed January15 2022.))

In its existing strategic document (Strategy for the Renewal of Energy Supply of the Republic of Croatia) and the document in the draft phase (Strategy of Digital Croatia for the Period until 2030), the Republic of Croatia pursues the main policies and measures for the realisation of the European Green Plan. To realise the European Green Deal, EU policy must be rethought. The war and political instability between Ukraine and Russia have seriously threatened the viability of the European economy.

The prices of energy from non-renewable energy sources (mainly natural gas and crude oil) usually increase constantly from year to year, albeit with periodic fluctuations, which ultimately, however, do not lead to a long-term reduction in the prices of products and services, but to their further increase. The prices of energy from non-renewable sources (mainly natural gas and oil) tend to increase constantly from year to year, albeit with periodic fluctuations, which, however, do not ultimately lead to a long-term reduction in the prices of products and services, but to their further increase. In order for the European economy to maintain its level of competitiveness, ensure further growth and development, but also energy independence from energy imports from non-renewable energy sources, the process of green energy and further digitalization requires an accelerated transition.

5. EU FUNDING FOR GREEN AND DIGITAL TRANSFORMATION

In the new programming period (2021 - 2027) will be financed projects aimed at a higher goals as are green and digital transition. For the period from 2019 to 2024, the European Union has defined 6 priorities that will be worked on and that will be financed through tenders. The two priorities in the focus of this paper are: green transition (European Green Agenda) and digital transition / transformation (Europe ready for the digital age). These priorities are particularly highlighted within the Recovery and Resilience Mechanism, within which the largest funding will be possible. (European Commission, 2020). The strategic investment plan in the European Green Plan will mobilize EU budget funds and create a framework for more fluid and stimulating public and private investment, which is needed for the transition to a climate-neutral, green, competitive and inclusive economy. The same one includes three dimensions:
Financing: mobilising at least €1 trillion of sustainable investments over the next decade. A greater share of spending on climate and environmental action from the EU budget than ever before will crowd in private funding, with a key role to be played by the European Investment Bank.

- *Enabling:* providing incentives to unlock and redirect public and private investment. The EU will provide tools for investors by putting sustainable finance at the heart of the financial system, and will facilitate sustainable investment by public authorities by encouraging green budgeting and procurement, and by designing ways to facilitate procedures to approve State Aid for just transition regions.
- *Practical support*: the Commission will provide support to public authorities and project promoters in planning, designing and executing sustainable projects. (European Commission, 2020).

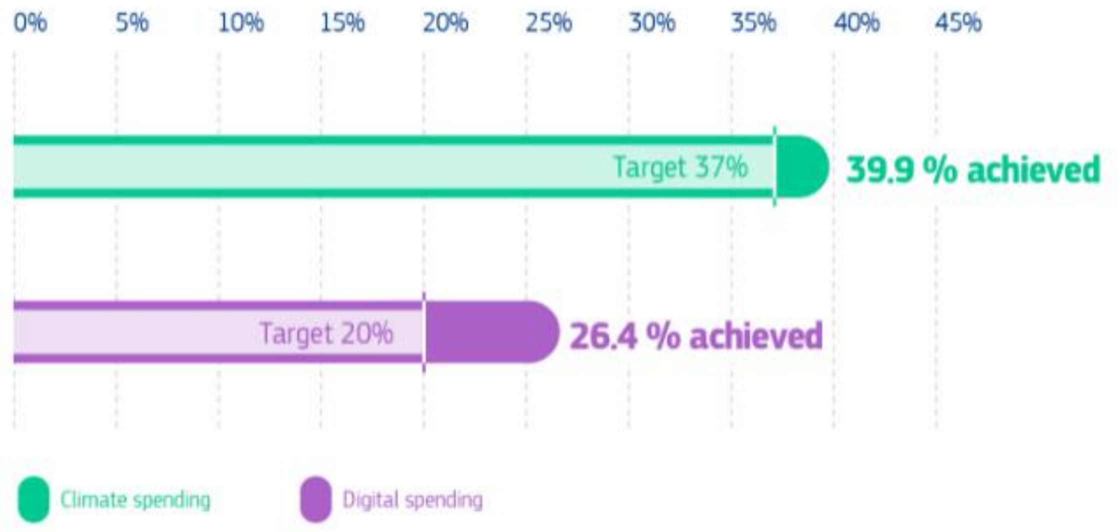
The Just Transition Mechanism (JTM) is a key tool to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind. While all regions will require funding and the European Green Deal Investment Plan caters for that, the Mechanism provides targeted support to help mobilise at least €100 billion over the period 2021-2027 in the most affected regions, to alleviate the socio-economic impact of the transition. The Mechanism will create the necessary investment to help workers and communities which rely on the fossil fuel value chain. It will come in addition to the substantial contribution of the EU's budget through all instruments directly relevant to the transition. The Just Transition Mechanism will consist of three main sources of financing:

1) A Just Transition Fund, whichwill receive €7.5 billion of fresh EU funds, coming on top of the Commission's proposal for the next long-term EU budget. In order to tap into their share of the Fund, Member States will, in dialogue with the Commission, have to identify the eligible territories through dedicated territorial just transition plans. They will also have to commit to match each euro from the Just Transition Fund with money from the European

Regional Development Fund and the European Social Fund Plus and provide additional national resources. Taken together, this will provide between €30 and €50 billion of funding, which will mobilise even more investments. The Fund will primarily provide grants to regions. It will, for example, support workers to develop skills and competences for the job market of the future and help SMEs, start-ups and incubators to create new economic opportunities in these regions. It will also support investments in the clean energy transition, for example in energy efficiency.

2) A dedicated just transition scheme under InvestEU to mobilise up to €45 billion of investments. It will seek to attract private investments, including in sustainable energy and transport that benefit those regions and help their economies find new sources of growth.
3) A public sector loan facility with the European Investment Bank backed by the EU budget to mobilise between €25 and €30 billion of investments. It will be used for loans to the public sector, for instance for investments in district heating networks and renovation of buildings. The Commission will come with a legislative proposal to set this up in March 2020.

The Just Transition Mechanism is about more than funding: relying on a Just Transition Platform, the Commission will be providing technical assistance to Member States and investors and make sure the affected communities, local authorities, social partners and non-governmental organisations are involved. The Just Transition Mechanism will include a strong governance framework centred on territorial just transition plans (European Commission 2020). The dedicated InvestEU scheme is the second pillar of the Just Transition Mechanism. The InvestEU Programme is uniquely suited to provide long-term funding to companies and to support EU policies in a recovery from a deep economic and social crisis. In the current crisis, the market allocation of resources is not fully efficient and the perceived risk impairs private investment flow significantly. The InvestEU Programme, whose budget stems partly from Next Generation EU, is able to provide crucial support to companies in the recovery phase. At the same time, and in line with its original goals, it ensures a strong focus of investors on the EU's medium- and long-term policy priorities such as the European Green Deal, the European Green Deal Investment Plan and the Strategy on shaping Europe's digital future.InvestEU also supports activities of strategic importance to the EU, in particular in view of enhanced resilience and of strengthening strategic value chains. (European Commission, 2020). The Public Sector Loan Facility is the third pillar of the Just Transition Mechanism. It will combine €1.5 billion of grants, financed from the EU budget, with €10 billion of loans from the European Investment Bank (EIB), to mobilise between €25 and €30 billion of public investment that will meet the development needs of just transition territories. The facility could be extended in the future to finance partners other than the EIB. This instrument will exclusively target public entities, providing support to projects that do not generate a sufficient stream of own resources to be financed commercially. Projects are expected to include investments in all types of public infrastructures, such as in the area of energy and transport, district heating networks, energy efficiency measures including renovation of buildings, as well as social infrastructure. Support to fossil fuels related investments is excluded. (European Commission, 2020). The Facility is a temporary recovery instrument. It allows the Commission to raise funds to help Member States implement reforms and investments that are in line with the EU's priorities and that address the challenges identified in country-specific recommendations under the European Semester framework of economic and social policy coordination. It makes available €723.8 billion (in current prices) in loans (€385.8 billion) and grants (€338 billion) for that purpose. The RRF helps the EU achieve its target of climate neutrality by 2050 and sets Europe on a path of digital transition, creating jobs and spurring growth in the process. (European Commission, 2020).



Picture 1: Double transition: climate neutrality and digitalisation
(Source: https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_hr (accessed 08 January 2022.))

The visual shows that Member States have allocated almost 40% of the spending in their plans to climate measures and more than 26% on the digital transition across the 22 recovery and resilience plans approved so far. This exceeds the agreed targets of 37% for climate and 20% for digital spending. Joint, coordinated action at the European level is more effective and benefits Member States more than individual national expenditures, not least due to significant spillover effects across countries. (European Commission, 2020).

6. IMPACTS OF DIGITAL AND GREEN TRANSFORMATION ON THE ECONOMY OF THE REPUBLIC OF CROATIA

To achieve the goals shown in Figure 1. Double Transition: carbon neutrality and digitalization, Member States and their contracting authorities shall issue public calls for proposals for legal entities (micro, small and medium-sized enterprises) to finance projects in the area of transition to the green and digital economy. Legal entities in the Republic of Croatia in the period from 2019 until today are able to use financial resources aimed at strengthening competitiveness through investment in information and communication technologies and investment in green and digital transitions. As part of the public call for proposals "Improving the competitiveness and efficiency of SMEs through information and communication technologies (ICT) - 2" and "Strengthening the competitiveness of companies by investing in digital and green transformation", the author has analyzed the following parameters: projection of increased export revenues in year m + 2, projection of net number of jobs as a result of implementation of project activities in year m + 2, projection of increase in sales revenues in year m + 2) crucial for further growth of the economy of the Republic of Croatia.

Table following on the next page

Countys	
	Positive
City of Zagreb	398
Zagreb County	76
Split-Dalmatia County	63
Primorsko-Goranska County	65
Osijek-Baranja County	44
Istria County	43
Koprivnica-Križevci County	40
Međimurje County	35
Varaždin County	39
Krapina-Zagorje County	36
Vukovar-Srijem County	29
Brod-Posavina County	25
Sisak-Moslavina County	28
Karlovac County	19
Požega-Slavonia County	10
Bjelovar-Bilogora County	22
Virovitica-Podravina County	11
Dubrovnik-Neretva County	14
Zadar County	9
Šibenik-Knin County	10
Lika-Senj County	2

Table 1: Improving the competitiveness and efficiency of SMEs through information and communication technologies (ICT) - 2, CC.03.2.1.19
(Source: author processed and adapted the data given on: https://efondovi.mrrfeu.hr/MISPublicApi/poziv/download/416ca339-4b36-410b-b42e-54d4138f1c1e (accessed February 15 2022.))

From the data in Table 1. Improving the competitiveness and efficiency of SMEs through information and communication technologies (ICT) - 2, CC.03.2.1.19 it can be seen that most of the positively evaluated and approved projects come from legal entities located and registered in the: City of Zagreb (398), Zagreb County (78), Primorsko-Goranska County (65), Split-Dalmatia County (63), Osiijek-Baranja County (44), Istria County (43), Koprivnica-Krizevci County (40), Varaždin County (39), Krapina-Zagorje County (36), Međimurje County (35), Vukovar-Srijem County (29), Sisak-Moslavina County (28), Bjelovar-Bilogora County (22), Karlovac County (19), Dubrovnik-Neretva County (14), Virovitica-Podravina County (11), Požega-Slavonia County (10), Šibenik-Knin County (10), Zadar County (9), Ličko-Senj County (2).

Table following on the next page

Countys	
	Positive
City of Zagreb	136
Zagreb County	67
Istria County	36
Primorsko-Goranska County	38
Međimurje County	48
Split-Dalmatia County	35
Osijek-Baranja County	34
Krapina-Zagorje County	36
Varaždin County	33
Karlovac County	24
Zadar County	20
Sisak-Moslavina County	13
Vukovar-Srijem County	13
Koprivnica-Križevci County	11
Bjelovar-Bilogora County	15
Brod-Posavina County	12
Šibenik-Knin County	8
Požega-Slavonia County	7
Virovitica-Podravina County	6
Lika-Senj County	3
Dubrovnik-Neretva County	1
Total	596

Table 2: Strengthening the competitiveness of companies by investing in digital and green transformation, CC.11.1.1.01
(Source: author processed and adapted the data given on: https://efondovi.mrrfeu.hr/MISCms/Pozivi/Poziv?id=22f5cbd5-fbc3-43c3-850d-99516946bece (accessed February 15 2022))

From the data in Table 2. Strengthening the competitiveness of companies by investing in digital and green transformation, CC.11.1.1.01 it can be seen that most of the positively evaluated and approved projects come from legal entities located and registered in the: City of Zagreb (136), Zagreb County (67), Međimurje County (48), Primorsko-Goranska County (38), Istria County (36), Krapina-Zagorje County (36), Split-Dalmatia County (35), Osijek-Baranja County (34), Varaždin County (33), Karlovac County (24), Zadar County (20), Bjelovar-Bilogora County (15), Sisak-Moslavina County (13), Vukovar-Srijem County (13), Brod-Posavina County (12), Koprivnica-Križevci County (11), Šibenik-Knin County (8), Požega-Slavonia County (7), Virovitica-Podravina County (6), Lika-Senj County (3), Dubrovnik-Neretva County (1).

Call	Number of new jobs	Sales revenue	Export revenue	Private controbution
CC.03.2.1.19	2.631	2.393.602.051,02 kn[8]	-	320.003.478,37 kn
CC.11.1.1.01	2.105	2.284.964.570,93 kn	830.677.091,52 kn	2.211.049.521,46 kn
Total	4.736	4.678.566.621,95 kn	830.677.091,52 kn	2.531.052.999,83 kn

Table 3: Projection of number of new jobs, sales revenue, export revenue in year m + 2.
(Source: author processed and adapted to the internal date of HAMAG BICRO)

8 The unit of Croatian currency is the Kuna (Kn).

According to the data in Table 3. Projection of number of new jobs, sales revenue, export revenue in year m + 2 the projection of new jobs through the CC.03.2.1.19 call is 2.631 new employees, while the projection through the CC.11.1.1.01 call is 2.105 new employees. The projection of realized revenues in the approved 1018 project proposals from the CC.03.2.1.19 call is 2.393.602.051,02 kuna while the projection of realized revenues in the approved 596 project proposals from the CC.11.1.1.01 call is 2.284.964.570,93 kuna. According to the call CC.11.1.1.01projection of export revenu is 830.677.091,52 kuna. Share of private contribution according to the CC.03.2.1.19 call is 320.003.478,37 kuna and under the CC.11.1.1.01 call is 2.211.049.521,46 kuna. The total value of grants Strengthening the competitiveness of companies by investing in digital and green transformation, CC.11.1.1.0 earmarked for this call for proposals is 1.14 billion kuna, and we estimate that the investment cycle worth more than 3.6[9]billion kuna will be completed with the beneficiaries' funds. It follows that 1 kuna of non-repayable funds of this type of calls will increase the investment cycle by another 3 kuna to the original value.

7. CONCLUSION

In line with the European Green Plan the European union is focusing significant resources and knowledge at its disposal to transform the Union by 2050 into a just and prosperous society, with a modern, resource-efficient and competitive economy where there will be no net greenhouse gas emissions in 2050 and where economic growth is not resource intensive. The transition of the economy to achieve the goals of the European Green Plan by 2030 and 2050 was seriously disrupted in 2019 by the pandemic COVID -19 and the armed conflicts between Ukraine and Russia. The challenging time means for the European Union, for the reasons mentioned above, the discovery of new energy sources by third countries and the accelerated transformation towards the realization of the first energy independent continent. In the meantime, the process of transitioning the economy to an energy-independent continent will force the European Union and its members to continue importing significant amounts of energy sources from third countries, as well as from Russia, resulting in periodic price increases that will directly affect the rising prices of final products and the competitiveness of european companies. There is no single easy answer to tackle high electricity prices, given the diversity of situations among Member States in terms of their energy mix, market design, and interconnection levels. While many of the options above address the symptoms, it is important to tackle the root causes of the current high electricity prices, with collective European action on the gas market. The concept of energy development of the Republic of Croatia, in accordance with the European Green Plan, strives for new and clean technologies, innovations and research. Its realization will help improve the quality of life and ensure the necessary transformation of the croatian economy. With the funds from the "EU of the Next Generation" instrument, the Republic of Croatia has 9.15 billion euros for regional development and cohesion policy in this seven-year period. These financial resources will be the engine for the accelerated development of the Republic of Croatia, providing it with an important aspect for further growth, thanks to the green transition. In accordance to the call Improving the competitiveness and efficiency of SMEs through information and communication technologies (ICT) - 2, CC.03.2.1.19 and the call Strengthening the competitiveness of companies by investing in digital and green transformation, CC.11.1.1.01, companies from the territory of the Republic of Croatia employed 4,736 new employees and generated revenues of 4.678.566.621,95 kn. According to the amount of financial resources allocated for further digitalization of the Croatian economy, a ratio of 1: 3 is envisaged. It follows that 1 kuna of grants of this type of call will increase the investment cycle by another 3 kuna to the original value.

9 https://hamagbicro.hr/predstavljeni-rezultati-javnog-poziva-jacanje-konkurentnosti-poduzeca-ulaganjima-u-digitalnu-i-zelenu-tranziciju/ (accessed February 15 2022)

Strategic reforms and transformations in the Republic of Croatia will be carried out in the course of the National Development Strategy, which will be both the framework and the umbrella document for Croatia's further growth and development in this decade.

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SPEECH FRIGHT MANAGEMENT IN BUSINESS PUBLIC APPEARANCES

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ABSTRACT

Based on the importance of the speech fright in a public performance, research was conducted with the aim of defining how different profession deal with this type of anxiety. Speech fright manifests in various ways and affects the quality of the performance. In order to achieve the research target four hypotheses were stated: a) Respondents believe that the method of good preparation and practice of public speaking is the best method to combat anxiety; b) Respondents experience various symptoms of nervousness that affect the quality of public speaking; c) Respondents who encounter public speaking situations more often have developed resistance to the speech fright and d) Education in the field of communication and public speaking has a positive effect on reducing anxiety. To test the hypotheses, a structured in-depth interview was conducted on five respondents who conduct public appearances on a daily basis as part of their business activities.The results confirmed three of these hypotheses but the last one was not confirmed.

Keywords: *public speeach, business speech, business presentations, speech fright, fear of public speaking, speech fright symptoms, fright management methods*

1. INTRODUCTION

Public speaking has countless similarities with everyday conversation, but there are important differences and specifics that in public situations create anxiety. These differences can be determined through the larger audience to which the speech is addressed, the time limit in which the message is expected to be conveyed, and there is not too much room to interrupt and possibly correct what is said as can be expected in everyday conversations. Public speaking must be based on a logical structure, which is why it requires a good preparation (Tafra-Vlahović, 2013). All of this suggests that public speaking is an extension of lifelong communication skills. It is the characteristics that determine public speech, but also the importance of the outcome of that specific communication process that leads to the appearance of anxiety. Anxiety is defined as a psychological, physiological and behavioral condition that is induced in animals and humans, by a current or potential danger, and can be a reflection of a pathological state of mind since the constant fear of the unknown or undefined comes from within (Gregurek, Pavičić, Gregurek jr., 2017). A person most often reacts to anxiety on the basis of the first signal at the perceived impending danger, and possible reactions are escape or fight (ibid). Speech fright is, by definition (Dimitrov Palatinuš 2013) energy that helps people when they are in situations of any kind of public appearance and occurs as a natural way in which the body puts all the senses in an active state, awake state, where a person consciously experiences time and space in which it finds itself, the very situation, which is why that person can act adequately. The National Institute of Mental Health announced that the fear of public appearance is present in as many as 73% of the population.

According to numerous studies, this fear has a very high position on the scale of the most common fears, and on some of them it even triumphs or parries the fear of death (ibid.). Studer et.al (2011) provided results of their research on musical students according to which there are 65% of respondents that strongly need to receive more support and more information (84%) concerning stage fright and one third of the students experienced stage fright as a problem. The authors think that this was only moderately correlated with negative feelings of performance anxiety. Amir et.al. (2008) state that according to cognitive theories of anxiety, selective attention to negative social cues heightens anxiety and biases judgments of social events, thereby leading to ineffective social behavior. Gobbard (1979) says that stage fright is an universal human experience that occurs with varying intensity in everyone who stands before an audience and is correlated with shame arises from conflicts around exhibitionism, from concerns over genital inadequacy, and from the fear of loss of control. Hamilton (2000) states that fear of other people's views, fear of rejection, fear of the unknown, traumatic experience from the past, and social anxiety can be triggers of nervousness before a public appearance. Clevenger (2009) cites the definition of speech fright by Floyd I. Greenleaf from his unpublished master's thesis that say: 'social speech fright an evaluative dissability, occurring in social speech situations and characterized by anticipatory negative reactins of fear, avoidance and various internal and overt manifestations of tension and behavioural maladjustment'. Clevenger himself criticizes this definition and believes that it is not compatible with his obtained results of interviewing a large number of students about the experience of public speech anxiety. Speech fright is one of the universal phenomena that does not depend on a person's age, cultural background, gender, occupation or education (Furmark, et.al. 1999). A factor of significant influence on the occurrence of speech fright can also be the own experiences of individuals gained during life when they were exposed to similar situations. Even the oral examination in primary school has the characteristics of public speech because the person is (most often) exposed to the audience - classmates and the teacher who assesses the outcome. Experiences that accumulate through life can be negative, so they will only increase the anxiety with age, but they can also be positive, thus building self-confidence in an individual that plays a major role in combating anxiety (Verderber, Verderber, Sellnow, 2013). The reasons why people experience this anxiety are numerous. Bippus and Daly (1999) present the ones discussed by theoreticians as increased self-focusing, fear of not meeting audience expectations, believing that one is dissimilar and subordinate to the audience, perceived skills deficiency, fear of evaluation, audience scrutiny, an uninterested or unresponsive audience, lack of experience in public speaking situations, poor preparation and a contagion effect in which adjacent speakers' anxiety increases an individual speaker's own anxiety. The same authors conducted an interesting resarch to find out what is the difference of stage fright explanation between those who has no formal background in communication and those who own previous public speaking experience. The first group of respondents administered nine factors: mistakes, unfamiliar role, humiliation, negative results, rigid rules, personality traits, preparation, audience interest, and physical appearance. In contrary, the respondents with previous public speaking experience impacted their ratings of these factors, but their personal level of public speaking anxiety was unrelated. Tafra-Vlahović (2013) distinguishes four types of people according to how they deal with speech fright: those who avoid public appearances at all costs because the very thought of them creates anxiety; anticipators are those who worry excessively about their public appearance from the moment it is scheduled and are afraid of mistakes or criticism; adrenaliners feel a great deal of speech fright before a public performance and can be helped by calming techniques in order to eliminate the physical symptoms and improvisers who do not prepare well, so the speech fright catches them during public speaking. The cause of anxiety can be the situation itself or some intrinsic (internal) factors. Situational anxiety arises due to the burden of the situation or certain parts of the situation such as audience expectations, the importance of the outcome, the organization of space, the formality of the occasion and the like. Internal root of the speech fright on the other hand, is also called communication fear and refers to the internal relationship of the individual and the expected communication in public. It is most often conected with the fear of evaluation, feelings of inferiority, and Tafra Vlahović (2013) believes that the self-confidence of the speaker and the control over that fright is a necessary element of successful public speech and performance To be able to manage the speech fright one needs to know the own reactions and the methods of controling them. Speech fright can trigger a whole range of different symptoms that make it difficult for an individual to communicate in public, but these symptoms can also influence significant negative outcomes of the communication process itself. Studer et.al. (2011) discussed fright that is perceived as having negative career consequences by a considerable percentage of the students included in their research. Physical symptoms are caused by adrenaline because glucose is released in the blood, which supplies the muscles with energy, so they become tense and more ready for action (Lundeberg, 2001). Adrenaline causes a rapid heartbeat, speeds up the rate of breathing and increases blood circulation in the body, nausea, dizziness, sweating, trembling hands, kneeling, abdominal cramps, headaches and even fainting. Unpleasant symptoms lead to deconcentration, and even blackouts are possible when the speaker separates from the situation he is in, instantly feels the gap in minds and loses the flow of thoughts and forgets everything that was about to say. A significant problem can be caused by stuttering. Therapists have been dealing with stuttering as a speech impediment for a long time, and today there are various scales for measuring this problem. Bernardini et.al (2010) study children with stuttering and present The Speech Situation Checklist (SSC) that deal with individual’s emotional reaction to and extent of fluency failures in particular speech situations. The SSC is a self-report checklist which is contained in the Behavior Assessment Battery (BAB), a multi-dimensional set of inter-related, evidence-based, self-report tests that provide normative data for children who do and do not stutter. The SSC has two components: Emotional Reaction (ER) that assesses speech specific negative emotional reaction to interpersonal speech settings and to specific sounds \ words and Speech Disruption (SD) that evaluates a person’s report of speech disruption in the same situations. To determine the emotional reaction and later speech disrupitons, respondents are presented with 55 communication situations in which they must present their experience using the Likert scale in which to measure the ER, the statements are provided with the level of fear from: not afraid, a little afraid, more than little afraid, much affraid to very much affraid. The same Likert Scale is proposed for the SD where the respondents need to present the level of trouble they experince in the same situations. According to Bernardini et.al. (ibid) those who stattered score significantly higher than the ones that do not statter on the both sections of the SSC. Brutten i Vanryckeghem (2003), who are the initial authors of the presented scale, also designed a scale for adults. Although these are measuring instruments for people that stuttering is a regular speech barrier, the scale could be modified and used to measure stattering but as well appearance of other symptoms of fear and anxiety realted to speech fright. Some of the other behavioral symptoms are agitation, anxiety, hyperactivity, inability to organize thoughts, forgetfulness, and some people tend to take sedatives to eliminate the symptoms of fear[1] and according to Studer et.al. (2011) the experience of stage fright as a problem significantly predicted the frequency of use and the acceptance of medication as a coping strategy. Severe symptoms of nervousness also lead to poor non-verbal communication, such as shaky voice, staring at the floor, quiet speech, repetition of the same sentences, redness in the face, avoidance of looking at the audience, hunching over, frequent correction of allegations and the like. All of the above significantly contributes to the impression of insecurity.

[1] http://hdd.hr/2020/04/02/trema/ , prikaz simptoma treme (posjećeno 12.02.2021.)

Aronson, Wilson, and Akert (2012) addressed the topic of individual behavior in a group setting, that is, how the presence of others can have different effects on the way an individual behaves. They state that there are two variants of the presence of others; the first is completing the task with colleagues who are also completing some tasks and the second is completing the task in front of an audience whose main purpose is to observe the actions of the one who is performing. The results of dozens of researches proved to be consistent, and confirmed that if it was a relatively simple task or a well-practiced activity, the individuals observed performed it better. On the other hand, if it is a more difficult task that seemed unknown or not practiced well, there was a counter-effect in which the person needed longer to solve it and less successfully (ibid). The presence of others creates extra energy and increases psychological excitement. For that reason, dominant behavior occurs if the task is simple and familiar, and vice versa if the task is more complex and unknown. Phenomenon where people perform easy tasks better in the presence of others is called social facilitation, and the phenomenon known as social interference is for the situations in which people perform complex tasks less well in the presence of others. Public speaking is recognized by most as a more complex task, especially if people are not accustomed to constant presentations. Consequently, it is concluded that the psychological excitement and sppech fright that occurs due to exposure to observers may negatively affect the outcome of a public appearance as an example of social interference. Potentially solving the task in the form of a public appearance will be more difficult and thus increase the chances of a negative outcome.

2. METHODS OF REDUCING OR ELIMINATING SPEECH FRIGHT IN PUBLIC APPEARANCES

Speech fright in public appearances is a significant obstacle and hindrance, and many occupations in which the occurrence of the same or its elimination is of key importance, have developed various techniques and methods that can achieve the desired mitigating effect of fright. Techniques and methods of reducing anxiety that are most often mentioned by the authors are: attitude change method, relaxation method through exercise, breathing exercises, visualization, voice training method, audience profiling method, method of focusing on public performance preparation, nonverbal communication management as the method and combined therapeutic methods. Cognitive behavioral theory claims that the individual partially creates social phobia by exaggerating the probability and consequences of the failure and perceives speaking in front of those who listen as much riskier than it really is (Sedlan Konig, Peulić, Matijević, 2018) and the first method speaks about the importance of changing attitude towards fear and public appearances. This can also avoid blackouts and can ensure continuation of the speech because the skipping of thoughts is most often not noticed by the listener who does not know what was to be followed in the speech. Fear of possible mistakes and blackouts that an individual may encounter during a public appearance, due to the fear of being insufficiently professional or adequate, can be avoided by skipping thoughts, and if the speaker remembers a lost thought during the speech, the same can be added to the speech later (Tomić, Radalj, Jugo, 2020). Physical sensations described are never pleasant for the speaker and make public performance difficult, but while speech fright, palpitations, and nausea may not be so easily soothed, one can consciously change the way these symptoms interprets. The moment a person is overwhelmed by some of the feelings described, what can help is to make yourself convinced that it is excitement or liveliness due to public appearance, and even enthusiasm because a person has the opportunity to transfer the knowledge, skills or attitudes to other people who listen (ibid). It is often forgotten that every public performance is an opportunity to improve oratory, an exercise that makes you a better speaker, and that rarely mistakes will be noticed since the audience does not know the presentation plan and program in advance.

Therefore, it is important for a person to change the attitude and see every public speech as an opportunity for improvement and an opportunity for growth in the role of a speaker, and through experience the negative sppech fright transform it into the positive one. Psychologists recommend that every negative thought that occurs should be counteracted by at least five positive ones. Exercise is a great way for some to get rid of excess negative energy and direct the adrenaline to something else before a public performance. There are a variety of active exercises as well as relaxation ones that are known to help reduce anxiety. The activity will stimulate circulation in the body, circulation of the entire system, facilitation of the oxygen supply to the brain, and also divert thoughts ahead of the speech that follows. Physical activity is a good way to get rid of feelings that occur with fear. In addition to active exercise, body and muscle relaxation plays a major role in body tension that occurs due to the fright of public appearance. First of all, it is necessary to make sure that the body is placed in the correct position, which primarily concerns upright posture. This enables the proper flow of internal energy, which, among other things, has a lot of influence on voice and pronunciation. It is equally important that the head is in the correct position with respect to the spine and neck, and to achieve this there are several simple exercises (Tafra-Vlahović, 2013) that aim to concentrate on stretching the neck muscles, relaxing the whole body, controlling muscle tension and regulating breathing. Sedlan Konig, Peulić and Matijević (2018) believe that all body relaxation exercises as well as voice and pronunciation exercises start with proper breathing because if there is tension in the neck, speakers will force the voice from the throat and thus prevent interesting coloring of their voice. Breathing control is therefore very important, and breathing exercises are used not only for the purpose of calming down before a public performance, but in a number of panic-causing situations. Breathing exercises can be performed in a lying or sitting position, and in order to feel the constant flow of air, visualization of extinguishing the candles on the cake can be used and thus the air is exhaled. When breathing, breath control is important, and it can be performed with a longer pronunciation of f / s / š sounds during exhalation. Exhalation control is equally extremely important when practicing breathing. In this sense, exercises are recommended in which the duration of inhalation and exhalation is counted, and exhalation should be longer and slower than inhalation. It is very important to breathe deeply before and during speech. An exercise that can be performed is deep breathing in a way that the diaphragm and abdomen stretches. Stretching the diaphragm is achieved by squeezing the air by pulling the abdomen to the extreme limits, and sometimes additionally pushing the abdomen towards the spine with the hand. When inhaling, the diaphragm is active and it is lowered by pushing the abdominal muscles forward. For one exercise, it is necessary to do about twenty such slow inhalations and exhalations (ibid). Breathing exercises are used not only for the purpose of calming down before a public performance, but in a number of panic-causing situations. People who suffer from anxiety, panic attacks and similar conditions know that learning how to breath properly, and breathing for the purpose of calming down can be of great help. Studer et.al. (2011) say that in their research breathing exercises and self-control techniques were rated as effective as medication. Speech organs are rarely paid attention to, and are very important in forming a dynamic and clear voice to be used during a public appearance. One of the symptoms of speech fright is trembling of the voice, which makes fright easier to notice during speech. Škarić (2000) describes in details the course of different voice exercises and states their importance. The stretching and relaxation exercise has the task of increasing the alertness of the brain as the muscles fill and empty with blood while stretching the joints (jaw, shoulders, collarbones, elbow bones, and stretching the ligaments) contributes to easier and safer voice release when speaking. What is equally important is to move the head up - down, left - right to relax the tendons and thus increase the sense of speech in the body (ibid). The so-called 'thunderous ha' exercise is often cited as a very effective one. Exercise resembles a strong cough, but differs from a cough in the work of the larynx.

It is recommended to make a dozen voices "ha" within the eight seconds. It is necessary to open the mouth wide for better sound resonance. Vibrations are felt in the nose and face during this exercise. Individuals with the nasal voice problem, there are exercises such as the one aiming to increase the air pressure in the mouth - which is achieved by greater inflow and less swelling of the air from the mouth, while the other exercises cancels the pressure difference in the pharyngeal, nasal and oral cavities (ibid). The visualization method works on the principle of a mental draft of the presentation that everyone creates for themselves. Most people before an expected public appearance visualize and imagine only negative scenarios that can happen. This is not necessarily bad because it can predict possible positive responses, but in preventing anxiety it is important to focus on positive outcomes within the visualization. Positive visualization evokes real positive feelings. Many actors, musicians, athletes, and other publicly exposed people use a visualization method that is closely related to a positive mindset. Tafra-Vlahović (2013) believes that the effectiveness of visualization is based on the fact that such stimuli act on a subconscious level and then control further, so a person who really believes that is not a good speaker and thus thinks and feels about itself gets back such a stimulus that really makes it impossible to be a good speaker. As one of the main techniques in public speaking and communication workshops, visualization is carried out in two phases. In the first phase, the individual develops positive speech towards itself, using positive words and expressions that replace the negative or binding ones, for example "I have to" or "I need". In the second phase, the person imagines itself in a future situation in the role of a speaker in as much details as possible, with the characteristics that are wished to have possessed and as well the good reactions of the audience to the speech. Since everyone is free to make their own mental outline of the presentation before facing the audience, it is important that it is a positive one. A person should visualize itself as an interesting, eloquent, calm, confident speaker and as someone who easily conveys all thoughts and messages, fulfills the goals and the one whome the audience listens to with understanding. At the end of the presentation/speech performance, mutual satisfaction is felt – of the speaker and of the audience that received new information (ibid). It is great if the speaker has the opportunity to see in advance the space in which presentation will take place, because that way the visualization can be properly and completely implemented. The audience can also be imagined in the same way. If it is known in front of which type of audience the performance will take place, one can prepare and visualize better. It is important to remain realistic and concrete in the visualization, with an emphasis on the positive outcomes of the performance (ibid). Lucas (2015) considers it to be an extremely effective method that in combination with others leads to superior results. Knowing the audience helps in choosing the appropriate content, vocabulary, way of presenting the speech, how to establish contact with the audience and how to keep attention and prepare visual aids (Tomić, Radalj, Jugo, 2020). Therefore profiling the audience is recognized as a good method to reduce speech fright. It is not the same to speak in front of a group of retired professors, at a conference for national minorities or a panel on environmental care where the audience is high school students. The speaker can use several methods to determine how to tailor the message to a particular type of audience. These are targeted analyzes according to demographic, psychological and situational factors. If the speech is given in front of people who have a certain knowledge of the topic to be exposed, it can be concluded that they want to learn more and learn something new. If there is insight into who will be listening to the speech, one can think in advance about how the topic will be presented, whether a more relaxed friendly approach will be used or whether something more serious needs to be taken (McKay, Davis, Fanning, 2009). It is rarely that one knows absolutely all the characteristics of the audience before the speech, such as political views, so it is better to remain indifferent to such topics and intuitively adapt to the speech.

Information that the speech will be given in front of a specific group of people, for example students, can be helpful, as it gives the speaker background information about the age of the audience and their general interests can be more easily guessed. The age of the audience is very important because people's attitudes are not the same across all age groups. In addition to the attitudes, there is an expression that needs to be adapted and the amount of humor that will be used should be well measured. It can also be expected that part of the listeners will wander in their thoughts, and that part will actively follow and possibly ask questions. Therfore it is to be known in advance that it is important to stay dynamic and keep the attention of those who wander. The most important thing is to pay attention to the audience and be guided by intuition when speaking, monitoring reactions and then change the direction or manner of speaking if necessary (Tafra-Vlahović, 2013). Situational analysis of the audience refers to situational factors, which are the physical environment, the size of the audience, the attitude of the audience towards the topic and the like. What can usually be known before the performance is whether the audience will attend voluntarily, how many people are expected, whether there are people in the audience who already have some knowledge about the topic to be talked about and what they expect from the speech performance. Audience size is a very important piece of information that can be obtained, because as a rule, the larger the audience - the more formal the speech or performance. Speaking time also carries its importance, although it is rarely paid attention to. If the presentation is prepared in the evening, fatigue can be expected, which is why it is necessary to make an additional effort to maintain the concentration of the audience. Every occasion expects an adequate speech, so the evaluation of the occcasion as to define whether it is a classic lecture, a speech on a panel, a solemn occasion or something else is of great importance. Audience profiling can be helpful in many ways, although the speaker will not fully adapt to the audience until the duration of the very public speech. When the one steps on stage, greeting by one of several types of audience can be expected: friendly, neutral, disinterested, or hostile (ibid). It is possible to address a friendly audience in a warm and open way, use humor, anecdotes and talk about their experiences, while a neutral audience likes controlled speech, without exaggeration and "performances" and presentation of facts, statistics, expert opinions, and humor is used less often. . If the audience's disinterest is obvious, the performance should be as dynamic as possible, using short and simple structures, powerful quotes, and colorful visuals. With a hostile audience, any jokes are avoided, objective information is given, and the performance must be as calm and controlled as possible, without a major change in voice dynamics (ibid). Good preparation before public speech performance is the most important method that should always be used. Perparation of the subject/topic as well can be vieved as to ensure previously described phenomenon of social facilitation where people perform easy tasks better in the presence of others as it can be concluded that well preperad and familiar subject/topic becomes an easier if not easy task. Along with preparing the content of the speech and getting familiar with the speech flow, preparation may involve making additional materials or aids that can contribute the success. Especially if statistics are presented, visual representations can be of great benefit when presenting (Lucas, 2015). The person expecting a public appearance must ensure a good knowledge of the topic being presented, but this does not apply exclusively to the preparation of materials and learning the content. Preparation includes thinking about possible questions that the audience will have and might ask and preparing for answering and discussing, and preparing clues in a logical sequence that will help the speaker not to get lost during the performance. The clues can be prepared on simple paper, in the form of terms that will remind the speaker what to talk about if the flow of thought is accidentally lost during the speech. It is by no means recomended to write an entire presentation or speech on paper and then read it in front of an audience. Preparation will in itself reduce the nervousness and drive away most of the mistakes that might otherwise occur.

When one faced the speech fright, reconciling all elements of communication is difficult. Fear convulses the person, pulls him in, and the hands tremble along with the voice. The audience receives a large part of the message through non-verbal signals, so it is easier to trust a speaker whose non-verbal communication is aligned with the verbal and when the audience feels self-confidence of the speaker. The method of reducing anxiety is a preparation that also includes assessing one's own non-verbal communication management skills and putting nonverbal signals under control. Paraverbal communication that refers to the way something is said (Mehrabian, 2009) is of a significant role and a significant element of nonverbal communication. It is necessary to speak clearly, loudly enough, at an appropriate pace (neither too slow nor too fast), and long pauses should be avoided (especially those such as "mmm" sounds between words or sentences). Mehrabian advises maintaining eye contact, which gives the impression of persuasiveness, and each listener will feel that the speaker is addressing him and that the speaker cares about the reaction of each one in the audience. During the presentation, it is not good to stand in one place, but to move as needed (except when the situation requires standing still, in front of a speaker, etc.). A person should ensure standing upright, not hunching over. It is important to please the audience from the very beginning, so it is good to have a smile on your face to show listener's friendly approach and so the audience would return it with their reactions. The question of "where to put your hands" often arises, as it is not convenient to keep your hands in your pockets when presenting. It is best to have some kind of aid, such as a ballpoint pen that can be held in the hands with appropriate gesturing, but the recommendation is to be careful not to overdo it. A presnter/speaker should keep in mind that dressing is also an integral part of non-verbal communication and that the choice of clothing sends messages to the audience about the speaker himself as well as about the speaker's perception of the situation and the topic that is being presented. By making the wrong choice, especially if it is about uncomfortable clothing, a person will increase the level of nervousness and make it impossible to control and reduce speech fright. Tafra-Vlahović (2013) presented combined therapeutic methods such as systematic desynthesis which involves deep muscular relaxation and deep breathing and then visualization of a situation that causes fear. Cognitive restructuring as the other combined exercise is based on the belief that irrational thoughts that create unrealistic expectations and negative images cause oratory and rhetoric therapy that concentrates on speaking skills with the goal of improving interpersonal communication skills.

3. RESEARCH METHODOLOGY

The starting point of the research is a question whether the experience develops resistance to the appearance of speech fright symptoms and which are most often method to deal with the speech fright used and recommended by those who within their job tasks encounter public appearances on a daily basis. The aim of the research was to determine the validity of the three hypotheses:

- H1 Respondents believe that the method of good preparation and practice of public speaking is the best method to combat anxiety.
- H2 Respondents experience various symptoms of nervousness that affect the quality of public speaking.
- H3 Respondents who encounter public performance situations more often have developed resistance to the appearance of anxiety.
- H4 Education in the field of communication and public speaking has a positive effect on reducing anxiety.

The hypotheses were explored through a structured in-depth interview with five people of different professions who speak in public on a daily basis as part of their business activities.

The research involved a professional skier (IR), a television presenter (KP), a scientist and politician (BD), a teacher (VL) and a person employed in PR (JB). Only initials were used in this paper and although consents were obtained from the respondents it was decided not to publish the names (they might be given on request after the approval of the respondents). Interviews were conducted in contact and through the Zoom platform. The structured anticipated questions were tasked with giving guidance in the interview, and respondents were free to talk about their experiences and express their views and feelings regarding public speaking and the nervousness that emerges.

4. INTERVIEW ANALYSIS

All respondents were asked the same basic questions as guidelines for further discussion. In this analysis, detailed elements of the interview with each of the respondents are presented, and at the end in Figure 1 the combined elements related to the factors in focus are presented.

4.1. Professional skier (IR)

Professional sportsmen are primarily exposed to the audience in the moments of competition, and they are often accompanied by cameras that transmit their performance to a wider audience in front of small screens. In addition, they often find themselves in a situation where they have to make a statement, participate in press conferences and rallies. IR emphasized that at the beginning of his career he was nervous when giving statements in front of the camera, but he no longer feels it equally, ie he says that symptoms can appear if there is a larger audience, but also that they appear only before the performance before he starts speaking. These symptoms are not found to be negative. He does not state any method that he would use and he simply tells himself that he has to do it and so he starts a public appearance. He thinks it would be ideal if there was a possibility of turning the fright on and off. Specifically, when asked if he carries out any form of preparation, he says that in public appearances he usually talks about his own completed experiences, so he believes that there is nothing special to prepare. At the very beginning of his skiing career, he even prepared once, but in the end it turned out to be very strange, unrelated and unnatural, and it was obvious that what he was saying was learned. As for non-verbal communication, he says he doesn’t pay too much attention to it. He has no education on communication and public speaking, but has received informal advice on how to behave in front of the camera. He admits that he did not listen to that advice, especially because in the rush of adrenaline and emotions after the race he was not able to think of anything else. In those moments, he gives an honest statement to the press. IR says: *"Maybe it sometimes turns out a little wrong, or people misunderstand what you thought, but it's hard to control all those emotions and everything that happens after a race."*

4.2. Scientist and politician (BD)

The respondent has many years of work experience as a university professor, and she was also a minister in her career. In addition to the experience of daily public appearances in front of numerous students, she exposed herself to the public through a political prism, participated in numerous projects and international scientific conferences where she exhibited. Already at the beginning of the conversation, she emphasized how important preparation before a public appearance is for her. She says that she is not nervous and that when she feels nervous it is only a positive anxiety, but her preparation is crucial even when it comes to short performances, and she thinks about every message she conveys in advance. Its preparation consists of two levels: the first, which includes knowledge of the content and what is to be said and the way in which it is intended to be performed, and the second level, which refers to the assessment of potential risks. In part of her career in politics and when her questions were not demanding in a professional sense, she had to anticipate possible aggressive questions from journalists or other types of attacks. This second level of preparation involved thinking about who the interlocutor was and not only in terms of who the journalist was but who the general public to whom the message was being sent was. She believes that calmness and the formulation of clear and easy-to-understand messages are important in public speaking. She did not feel nervous at the beginning of her career, but only later when she started making political public appearances, because then she began to attract the attention of the media who paid attention to elements of her performance that she considered irrelevant, which created great pressure. BD says that she felt this was a very big burden she had endured given the experience, but the same for someone younger could be devastating. The respondent does not use breathing exercises, voice exercises or visualizations because she has her own system of relaxation: *"I try to gather myself before public appearances, just like before lectures. You enter the hall or open Zoom, and there are a hundreds of people on the other side. You have to compose yourself, focus on what you are doing and make yourself aware of what you are doing. I repeat to myself what messages I want to send, I take some peace before the lecture to agree with myself."* Even during her studies she received some advice on how to perform a public appearance. One of the more significant things was the project with the UK on scientific communication, where she attended specific workshops and trainings. At the time of her political work, she did not attend any additional training, although she had a public relations officer with her who gave her advice on how to better communicate with the audience. This mainly concerned the simplification of messages into concise and clear lines. She is of the opinion that too much public speaking training can go in the wrong direction: *"From the public milieu, ie political life, I can assess with certainty which people had the same communication coach, because they have a very similar way of expression, gestures and the like. This results in being unconvincing. The most important thing is to stay your own, even if you sometimes stutter, people recognize when something is not authentic."*

4.3. Primary school teacher (VL)

The interviewed primary school teacher is at the beginning of her career, and she experienced real, great trepidation and panic before each public presentation during her studies. At the beginning of her work in primary school, it was challenging to get used to the daily public performance even though the audience was only children. Common symptoms of nervousness that he cites are cold sweats, sweating of the hands, drowsiness and yawning, a feeling that the brain is completely blocked, the appearance of feelings of fear and anxiety. Unlike the time of her studies, now speech fright is her everyday life and there is no choice. She says that working in school requires detailed preparation and if it is done well there is a sense of control. She even prepares for alternative situations if something goes wrong. VL has used almost all techniques and methods throughout her life to alleviate the uneasy feeling that the fright inflicts. Good preparation, breathing exercises, physical activity and others have always been an integral part of the ritual before her public appearances. She also shared her technique or exercise 'list 5 things' that she found useful. It is a relaxation exercise in which it is necessary to list 5 blue things in surroundings, 5 wooden things, and then 5 soft ones. In this way, attention was concentrated on noticing details in space and moving away from the causes of stress. In addition to this exercise, she regularly uses the method of visualization and various physical activities such as pilates and yoga with which she has learned to master all available relaxation techniques. VL says it is extremely important for her to choose clothes in public that make her feel confident.

4.4. Television presenter (KP)

The local TV presenter with long working experinece points out that after 22 years he no longer feels any speech fright even though he initially experienced that feeling. He says that the cause of his nervousness was the fear that people/audience would not accept him, and he emphasizes that he was less nervous when he performed in front of the camera because he did not see the audience then. He described the experience of his first major public appearance and the symptoms of speech fright he felt*: 'I made my first serious public appearance in the theater in the play Hamlet. One is rehearsals, but the moment when the theater is full and you need to go out… I remember that then a famous Croatian actor, after his scene, and before my appearance in front of the audience, told me that now my fiery baptism is starting. And when I went out, and as much as I knew the text, I was not ready for what awaited me. That feeling, kneeling knees and ringing in the ears. But beginner fears are a normal thing, does not metter what yor are engaged into.'* The technique the KP suggests for anyone struggling with fright is to bravely enter the fire immediately. He noted that the mistakes that are made in the beginning later disappear or are less pronounced. He knows all the techniques and methods of relieving the symptoms of anxiety, but admits that he does not use them. The only thing he always tries to apply is good preparation and knowledge of the content, and humor that helps if a mistake happens is welcome. The person performing is at least nice and closer to the audience, so it is easier to get forgiven for the possible mistake. He did not attend workshops nor trainings on public speaking. He believes that he received the best advice from actors during public performances in the theater, which was a significant preparation for his later daily work in front of television cameras.

4.5. PR manager (JB)

Interviewed PR manager often gives presentations, gives statements to the media and leads certain activities within the program. During her career, she also worked as a radio presenter. She talked about the situational speech fright she feels, most often when she is not prepared enough for a public performance. The symptoms she feels then are increased heartbeat, sweating of the palms and a rush of adrenaline. She says that although presently in most cases she does not feel nervous, it occurs when she is not sure enough about knowing the topic she needs to talk about or if she thinks she is generally not prepared enough. She finds particularly difficult situations in which he exhibits in English, especially if the environment is one that speaks and understands English well. She has been building her experience of public exposure since childhood on various stages, thus achieving the possibility of quick adaptation to new situations that could lead to nervousness. As a child, she began various activities such as reading in front of people, speaking poetry, performing in drama groups, solo singing and with choirs, and since she studied journalism, public performances were part of her schooling. All of the above has led to no longer experiencing the speech fright, but she says it's not the same as how she feels now and how she felt at the beginning of her career. Of the methods for reducing situational anxiety, she considers good preparation to be the most important. She rehearses the performance several times and tries to know the topic she is talking about well, so she says: *'By repeating the action, that public performance is no longer a hob, something new or abstract. You know roughly how the action will go, how to react in a particular situation, what to expect. By preparing or knowing the topic, you feel safer during the public appearance, anticipating questions and answering them also reduces stress, and with good preparation you can give answers to questions that you did not get or expected.'* Her routine is that before it all starts, he takes a deep breath. She used voice exercises while working on the radio, in order to "move" her vocal cords. The respondent emphasizes that the way she dresses is also of great importance to her because if you feel comfortable in clothes, you do not think about whether you fit well, you do not adjust your clothes and you focus better on public appearances. Through laughter, she also reveals the way she cheers herself up: *'Sometimes I cheer myself up by clapping my hands and shouting the words: let's go!'* She had the opportunity to attend trainings and workshops on public speaking as part of some courses at the faculty.

There she was given guidelines on how to perform a public appearance, pay attention to nonverbal communication, and was able to practice everything.

Profession	Symptoms	Education	Methods	Is the speech fright reduced by experience?
Professional skier	stronger heartbeating	-	-	yes
Scientists/politician	-	only the advices from PR consultant	preparation, focusing on the goal	yes
Primary school teacher	cold sweat, sweating hands, nausea, drowsiness, yawning, anxiety	during faculty education	preparation, breathing exercises, physical activity, visualization, comfortable clothes	yes
TV presenter	kneeling knees, ringing in the ears	-	preparation	yes
PR manager	excitement, stronger heartbeating, sweating hands	during faculty education	preparation, anticipation of questions and potential answers, self-encouragement, clothes	yes

Figure 1: Presentation of elements in focus
(Source: research results by the author)

5. DISCUSSION

From the presented results of structured in-depth interviews, it can be concluded that three of the four hypotheses were confirmed. Apart from professional skiers, all other interviewees conduct preparation and training before the public performance, and for two respondents this is also the only method to combat speech fright that they use. Based on the above, it can be concluded that the first hypothesis, which says: 'Respondents believe that the method of good preparation and practice of public speaking is the best method to combat anxiety,' was accepted. From five respondents only one person did not report any symptoms of speech fright while one respondent reported one related phenomenon. The other three list as many as 6 symptoms they notice before their public appearance, ie a total of ten different symptoms of anxiety. Most of the different symptoms of nervousness are noticed at the primary school teacher. The conclusion of the research is that hypothesis 2: ‘Respondents experience different symptoms of anxiety that affects the quality of public performance’ was also confirmed. All respondents equally stated that over time and experience their anxiety had diminished and that they no longer felt it to the extent they did at the beginning of their public appearances. Therefore, we conclude that hypothesis 3 has been confirmed: 'Respondents who encounter public performance situations more often have developed resistance to the appearance of anxiety'. Contrary to expectations, the results showed that education on communication and public appearances, according to the personal opinion of the respondents, has no role in reducing anxiety.

While two respondents did not go through any educational program, two went through only regular classes as part of their initial study while one respondent did not go through any training but used the advice of communication experts. From Figure 1 it can be seen that in two respondents who went through the educational program in the field of communication, no impact was observed in terms of reducing anxiety. This suggests that the fourth hypothesis: 'Education in the field of communication and public speaking has a positive effect on reducing anxiety.' cannot be confirmed.

6. CONCLUSION

Public speaking causes mental and physical feelings of discomfort that correlate with the success of the communication outcome and can negatively affect the speaker's goals. That is why control and management of the speech fright in public appearances is of great importance in all professions and all business situations in which an individual is expected to speak in front of others, regardless of whether it is a smaller or larger audience. Interview presented in this paper gives insight into how professionals who often speak in public prevent speech fright as well as their own perception of how education influneces the symptoms of sppech fright. Business success depends on many factors, and the quality of communication success is definitely one of them, so this topic has important task to develop speech fright management theory. Though the results suggest the need of wider research including different scientific methodology, this paper provide important guidelines for educating businessmen and their preparation for more successful business based on quality and efficient business communication.

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TRENDS IN ENVIRONMENTAL TAXES IN THE EUROPEAN UNION

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ABSTRACT

In the last decade, a topic regarding the environment has been often discussed. It has been confirmed that greenhouse gas emissions emitted by human personal and work activities have caused climate change. Since the problem has been recognised, it is important to find the best solution to stop climate change and reduce all the activities that cause the (negative) change. In addition to harming the environment and human health, emissions from energy consumption also contribute to climate change. Taxes on energy use may minimize excessive emissions while earning money to support important government services by charging for these harmful effects. According to the European system of accounts, environmental taxes have a physical tax base (or a proxy thereof) defined as something causing a proven, specific negative effect on the environment. Environmental taxes are designed to modify the behaviour of economic agents, such as households and firms. According to statistical data from Eurostat, environmental taxation represented 2.2% of GDP and 5.4% of total government revenue from taxes and social contributions in 2020. Eurostat provides a current view of environmental taxation in the EU. Environmental taxes consist of energy taxes, pollution taxes, resource taxes and transportation taxes. This paper aims to measure the weight of macroeconomic factors on environmental tax among the EU Member States. The time frame of the analysis is nine years, and the authors will use the Eurostat data. IBM SPSS will be used to run the regression analysis using the fixed effect method to analyse environmental tax in the EU.

Keywords: *environmental protection, environmental taxation, the European Union, gross domestic product*

1. INTRODUCTION

In order to address environmental issues, significant adjustments must be made to current production and consumption patterns. A substantial financial cost may accompany these adjustments. With regard to modifying behaviour across all sectors at a low cost, policymakers are increasingly using market-based instruments. As a result, market-based techniques for managing natural resources and reducing pollution are becoming a more significant part of environmental policy tools in the European Union (EU), and their use and efficacy are of great interest (Eurostat, 2013). Precisely because of the importance of environmental protection, the EU introduced environmental protection policies in Articles 11, 191 to 193 of the Treaty on the Functioning of the European Union (Herold et al., 2019).

The environmental policy is centred on environmental objectives and sustainable development. According to many authors, the main driving forces behind climate change policies are to improve energy efficiency and lessen environmental problems through environmental rules and levies (Eurostat, 2013; Shahzad, 2020). As a result, in EU and OECD nations, environmental protection policies are becoming increasingly significant economic tools for resource management as well as for pollution control. Taxes, levies, environmental protection fees, various subsidy systems, etc., are examples of these economic tools. The EU itself defines these tools as providing a flexible and cheap means of adhering to the "polluter must pay" concept and achieving the objectives of the environmental protection policy. The EU's Sixth Action Programme, the updated and amended EU Sustainable Development Strategy, as well as the Europe 2020 Strategy, are some of the initiatives that support the use of such instruments (Eurostat, 2013). Because of the importance of environmental problems, this paper proposes regression analysis using a fixed effect model to determine which variables (unemployment rate, employment rate, GDP, PPP, HICP, GHG emissions) affect environmental taxes and the direction of that effect.

2. LITERATURE REVIEW

One of the topics that received a lot of attention from academics, policymakers, and the corporate world is global warming. The use of fossil fuels as an energy source for human activities results in excessive greenhouse gas (GHG) emissions, which are widely acknowledged as the primary cause of global warming (Lin & Jia, 2018). There has always been an interest in the environment. Based on concrete examples, in the light of the proposed "natural" growth limits, and from a more general point of view, in connection with the idea of sustainable development, which was the focus of the report of the United Nations World Commission on Environment and Development more than 30 years ago, the importance of the environment was already emphasized (Remeur, 2020; Ghazouani, Jebli, & Shahzad, 2021). According to Fullerton, Leicester, and Smith (2008), through the use of environmental fees, emissions trading and other economic mechanisms, environmental policy has changed in the last ten years. With these incentives, strong environmental protection can be implemented at lower costs than with rigid regulations requiring specialized abatement technologies. As higher standards of environmental protection are pursued, the adaptability of economic mechanisms that reduce costs will become increasingly important. Environmental tax figures are included in the economic accounts for environmental protection, which are auxiliary accounts to the national accounts, according to Eurostat (2013). Metrics like GDP are derived from the national accounts, a broad statistical framework that is used to measure the economy. On a few crucial issues of paramount concern, such as the environment, information from satellite accounts is added to this framework. According to EU's Regulation No 691/2011, an environmental tax is "A tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment, and which is identified in ESA as a tax" (Eurostat, 2013). The term itself focuses on how taxes will impact certain activities, as well as how much they will raise the costs of goods and services that have a detrimental effect on the environment. The word also highlights and accentuates the tax base. To form environmental taxes, a list of tax bases had to be created. An environmental tax is any tax levied using these tax sources. The phrase alludes to the national accounts' notion of tax. To provide cross-country comparability, this takes into consideration the fact that environmental tax data is a satellite account for national accounts (Eurostat, 2013). There are other taxes that concern the environment, such as carbon tax, motor fuel taxes, environmental and energy tax credits and deductions, sulphur taxes, nitrogen taxes and charges. Reducing greenhouse gas emissions is the main goal of a carbon tax (Williams III, 2016). According to Fullerton, Leicester, and Smith (2008), several European nations enacted carbon taxes in the 1990s; nevertheless, an attempt to enact a carbon-energy tax across the entire EU was eventually unsuccessful. They also state that by placing a price on the use of fossil fuels (and, more broadly, on activities that produce GHG emissions), a carbon tax or emissions trading would seek to represent the otherwise unaffordable social costs of their usage (Fullerton, Leicester, and Smith, 2008). An assessment of the climate change consequences of the marginal tonne of carbon dioxide emitted at socially optimal abatement levels should be the basis for the "price of carbon" or appropriate rate of a carbon tax or emissions trading price derived from a selected quantity constraint on emissions. Due to rapid technological progress, China has become one of the largest carbon emitters in the world at the beginning of the 21st century, so it faces the need to regulate the market in order to reduce emissions (Dong et al., 2017). The carbon tax, according to Dong et al. (2017), is a useful policy for measuring and monitoring China's carbon emissions because it can effectively reduce emissions after 2020 by raising the price of carbon, and many regions could experience a decline in GDP if we don't switch to renewable energy sources. As stated by Sterner and Köhlin (2004), in 2002, environmental taxes were broadly accepted across Europe, including many Southern and Eastern European nations with less significant green movements, and have generated an average of 3% of GDP or 8% of government revenue. Andreoni (2019) states that, from the tax collecting system in the EU, only five of 25 observed countries in the time period from 2004 to 2016 have provided variations of the environmental taxes revenue. "Italy, Greece, Slovenia, Estonia and Latvia have been the only countries to increase the role of taxation rates and regulations and to reduce the relative contribution that economic factors have played in the generation of the revenue collected" (Andreoni, 2019). Economic growth and the impact of structural change have been the primary determinants of changes in environmental tax income in the other Member States. Fullerton, Leicester and Smith (2008) state four main advantages of environmental taxes and other economic instruments: 'Static' efficiency gains through reallocation of abatement, Dynamic innovation incentive, Robustness to negotiated erosion ('regulatory capture') & Revenue potential, but also mention the main five disadvantages of the abovementioned taxes: Geographically-varying damage, Incompatibility with firm decision-making structures, Damaging avoidance activities, Distributional effects & Concerns about international competitiveness. Bashir et al. (2021) have explored the environmental protection tax publications and have stated that the number of scientific papers has increased in the last five years, which can be seen on the next figure.

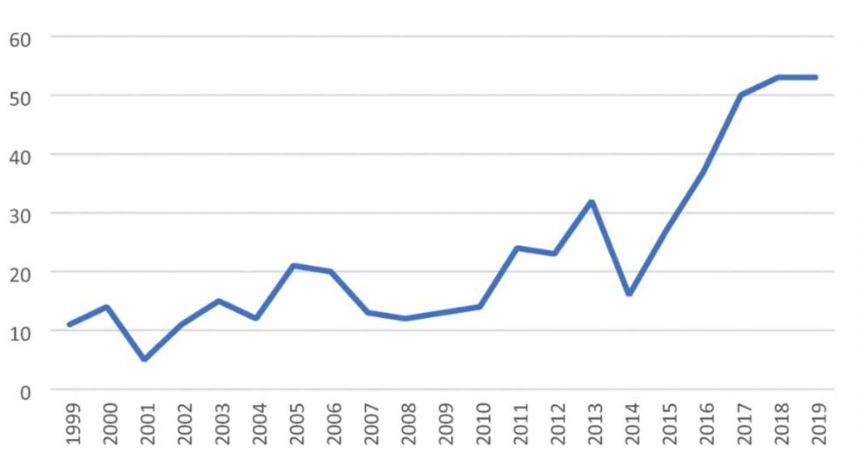

Figure 4: Publication Trend of Environmental Tax papers
(Source: Bashir et al. (2021))

In the observed period (from 1999 to 2019), environmental taxes were written about the most in the USA, followed by China and the UK (Bashir et al., 2021).

Bashir et al.'s (2022) empirical research advise OECD policymakers. They draw attention to the negative relationship between environmental taxes and renewable energy before pointing out that cost-cutting and technological advancement are also major obstacles to addressing climate change. They claim that additional political activities are required to solve technical issues, such as studying pertinent technical solutions and developing common demonstration applications. They continue by saying that OECD nations should quicken system transformation by emphasizing price marketability and that market forces—not governmental incentives—must be allowed to quicken the development of sustainable renewable energy consumption. Furthermore, given the high costs of renewable energy innovation and the need for greater attention, OECD nations should streamline the convoluted administrative processes for obtaining environmental patents and licenses. The final point of the paper was to avoid market disruptions caused by non-renewable energy sources and environmental regulations established during the switch from non-renewable to renewable replacements that require fundamental changes to the economic and energy structures of OECD economies (Bashir et al., 2022). It will be interesting to see how states and companies will adapt to the introduction of environmental taxes that are expected in the future. According to study by Krass, Nedorezov, and Ovchinnikov (2013), the firm's response to taxation may not be monotone: higher tax rates may result in dirty technology rather than cleaner technology.

3. METHODOLOGY

Bosquet (2000) researched how environmental tax reform (ETR) impacts GDP, employment, investments, and prices. The results showed that ETR would help create jobs and increase the demand and GDP. In addition, the ETR would increase the consumer price index (CPI) because the economy would need time to adjust to low-carbon production. Therefore, implementing the environmental tax would represent a burden on producers who would pass it on to consumers, and as a result, CPI rises. To achieve the aim of the paper, the authors set the following fixed effects panel regression model using Least Squares Dummy Variable (LSDV) approach:

$$environmental\ tax_{it} = f\,(Y_{it}, unemploy_{it}, GHG_{it}, employ_{it}, PPP_{it}, HICP_{it}, d_{AT}, d_{BE}, \dots, d_{SW})$$

where *environmental* tax_{it} is a tax on something with a demonstrable, specific harmful impact on the environment (Eurostat, 2020a). Y_{it} represents the GDP at market prices as the end result of the production activity of resident producer units for the country i (i = 1, …, 27) in the year t (t = 2012, …, 2020) (Eurostat, 2020b). $Unemploy_{it}$ refers to the percentage of unemployed individuals aged 15 to 74 as a proportion of the workforce. The workforce consists of both employed and unemployed individuals (Eurostat, 2017). GHG_{it} refers to the intensity ratios linking greenhouse gas (GHG) emissions and air pollutants to economic parameters (value added, industrial output) for 64 (NACE Rev. 2) industries (Eurostat, 2021). $Employ_{it}$ refers to the proportion of the entire population aged 20 to 64 that are employed (Eurostat, 2017). PPP_{it} stands for buying power parities, which describe price level discrepancies between nations. PPPs indicate how many currency units a certain quantity of products or services costs in various nations (Eurostat, 2022a). $HICP_{it}$ provides comparable inflation measurements for the nations and country groups for which it is prepared. It is an economic statistic that measures the price change of consumer goods and services purchased by households over time (Eurostat, 2022b).

Since there are twenty-seven countries, the authors included twenty-six dummy variables and made Germany the reference country. The authors used panel data to examine the environmental tax variables of EU countries over time. Descriptive statistics on model variables are given in Table 1. The authors used secondary data available at Eurostat.

Variable	Symbol	Observation	Mean	Std. Dev.	Min.	Max.	VIF
Total environmental taxes (in million euro by all NACE activities plus households, non-residents and not allocated)	*environmental tax*	243	16596.35	11257.11	205.49	61113.12	
Gross domestic product at market prices (% of EU27 total per capita - in million euro)	*Y*	243	99.52	67.51	22.2	349.0	1.840
Unemployment rate (% of total population)	*unemploy*	243	5.681	2.9538	1.3	17.3	1.842
Greenhouse gases (grams per euro)	*GHG*	243	433.81	284.35	97.89	1553.48	1.666
Employment rate (% of total population)	*employ*	243	70.71	6.47	52.5	81.8	2.039
Purchasing power parities (actual individual consumption)	*PPP*	243	9.49	35.05	0.5928	214.686	1.074
Harmonised index of consumer prices (annual average index)	*HICP*	243	101.78	3.16	95.75	113.15	1.254

Table 1: Descriptive statistics
(Source: authors)

As Table 1 shows, a variance inflation factor (VIF) that measures severity in regression analysis shows that multicollinearity among all included variables in this regression model does not exist. The rule of thumb for VIF is that the tolerance should be between 0.1 and 10 (Miles, 2014). A technique that is particularly helpful in the context of causal inference is fixed effects (FE) regression (Gangl, 2010). If there are unobserved confounders, traditional regression models can produce biased estimates of causal effects; however, FE regression is a technique that, under certain conditions, can produce unbiased results (Best & Wolf, 2013). Panel data is where FE regression is most frequently employed. It can be applied to any type of multi-level data, though. These are data sets in which lower-level units are nested inside larger groups, which are sometimes also called “clusters”. A multi-level regression assumes that there isn't any unobserved heterogeneity at the unit or group level. Due to self-selection on the group level, this assumption is often broken by data that isn't from an experiment (Best & Wolf, 2013). FE models, on the other hand, can make it less likely that there isn't any unobserved heterogeneity. A fixed-effects regression is defined at the level of the units and includes constants that are unique to each group. Because group-specific fixed effects eliminate all group-specific unobserved heterogeneity, FE models only need to assume that there is no unit-specific unobserved heterogeneity (Best & Wolf, 2013). So, FE models are better than standard regression models because they can find a causal effect under weaker assumptions. In addition, the FE investigate the association between predictor and outcome factors inside an entity (country, person, company, etc.). Each entity possesses unique properties that may or may not affect the predictor variables (Torres-Reyna, 2007). Importantly, the FE model assumes that these time-invariant features are unique to each individual and should not be associated with other individual characteristics. Since each entity is unique, its error term and constant (which captures individual features) should not be connected with those of other entities (Torres-Reyna, 2007).

4. RESULTS

The authors represent a fixed effects panel regression model using the LSDV approach results in Table 2. The "b" wight tells how much each added value of six variables influences the total amount of environmental tax.

Symbol	b	β	p	Model
Y	-14.570	-.059	.233	R^2 = .997 F (32, 210) = 1152.138 p < .001
unemploy	-88.022	-.016	.531	
GHG	1.783	.031	.244	
employ	85.971	.034	.348	
PPP	-33.615	-.071	.252	
HICP	110.692	.021	.013	

Table 2: Regression analysis
(Source: authors)

Based on the conducted regression analysis, the results are statistically significant (p < 0.000 at the 95% confidence interval. The FE model consists of thirty-two predictors that produced R^2 = .997, F (32, 210) = 1152.138, p < .001. As shown in Table 2, among six variables that were not dummy variables, only harmonised index of consumer prices has a positive significant regression weight (p = .013), indicating environmental taxes are higher in countries where households pay higher prices for a basket of consumer goods and services. The unemployment rate showed a negative regression weight, but it was not significant (p =.531). Moreover, GHG emissions showed a positive regression weight, but it was not significant (p =.244). In addition, the employment rate showed a positive regression weight, but it was not significant (p =.348). Besides, GDP at market prices, as well as PPP, showed a negative regression weight (p =.233, p =.252, respectively). All dummy variables showed a negative significant regression weight (p =.000 for each dummy variable). The authors calculated changes in GHG emissions and changes in environmental taxes. Based on calculations, the results are shown in Figure 1. For the purpose of calculations, the authors summed the total amount of GHG emissions and divided them by the total number of EU Member States since the analysis consists of twenty-seven countries, and the UK was not included during observed time.

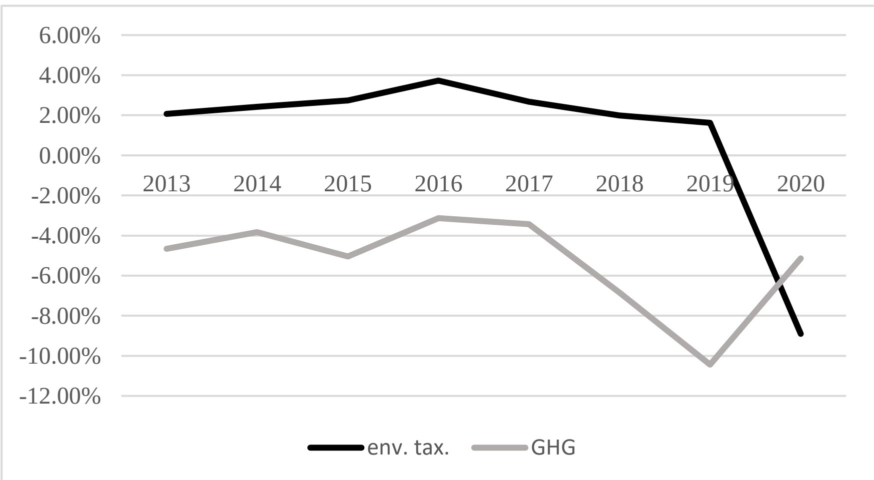

Figure 5: Changes in GHG emissions and environmental taxes in the European Union (27 countries)
(Source: authors)

As Figure 2 shows, the environmental tax had a positive trend during the observed time, while GHG emissions declined. 2019 showed changes in stable trends for both variables because the amount of environmental tax sharply declined, while GHG emissions sharply increased. Changes continued in the same direction during 2020, when the COVID-19 pandemic occurred. Changes in 2020 were unpredictable because they show that more GHG emissions are emitted while environmental tax decreased, but it should be the opposite. If countries emit less GHG, they should pay less environmental tax. It would be interesting to compare the results with those in the USA and China.

5. CONCLUSION

This paper examined significant future tax and environmental changes. Environmental taxation is one strategy for encouraging consumers to make eco-friendly decisions; when used in conjunction with other tools, it can aid in bringing about the changes needed to address the environmental and climatic issues we are currently experiencing. Macroeconomic factors such as unemployment or employment rate can have a different impact on environmental taxes. On the one hand, environmental taxes could create new jobs because new technologies would be used for production, and the relationship between employment and environmental tax can be positive. On the other hand, higher employment rates are connected to more developed economies that emit less GHG emissions than less developed economies. Therefore, the relationship between employment and environmental tax could be negative. The results of the conducted analysis showed the positive weight of employment among the EU Member States, but they were not statistically significant. The relationship between the unemployment rate and environmental tax is opposite of the one explained between the employment rate and environmental tax. When GDP is discussed, countries with higher GDP are considered more developed than those with lower GDP and countries with higher GDP pay less environmental tax. Conducted analysis showed that the weight of GPD on the environmental tax is negative. Since HICP represents consumer price inflation, the analysis confirmed that countries with higher inflation pay more environmental taxes. It can be abbreviated that higher the inflation, the consumer would need to pay more taxes, and the analysis showed it is the case among the EU Member States. The limitation of the conducted analysis is the high number of dummy variables compared to independent variables and a time frame of only nine years. Authors suggest including more macroeconomic factors in future research and clustering the EU Member States geographically as regions to avoid many dummy variables.

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PREREQUISITES FOR DEVELOPMENT AND IMPLEMENTATION OF A BALANCED SCORECARD

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ABSTRACT
This study is a rational summary of the accumulations in the field of measuring performance indicators, which is appropriately made and shows in practice how one organization can achieve real value as a result of management of intangible assets, combining with organizational strategy. The introduction of a new content of the measurement methodology with the use of its three roles - compliance with standards, verification and improvement differ significantly and are much broader than the traditional concept of measurement as a tool for strategic management and relevant control. They are not based on the understanding that behavior can be controlled by measurement. They are based on the view that Balanced scorecards are a tool used to improve the course of institutional development and that it has other characteristics that should be measured and managed in a new different way.
Keywords: *Balanced scorecard, Performance measurement, Strategic management, Control, Organisation*

1. INTRODUCTION

Today, managers from all sectors of the social system globally face a double challenge: how to mobilize their human capital and information resources and how to adjust their organizations in the direction of new strategies in accordance with the high requirements of their informed and demanding users and customers. Institutions and organizations generally respond to this challenge by establishing new strategies and re-directing their activities – by declaring new inspiring missions and concepts – to providing increased value to their clients and partners. However, the serious problem they all face is, in fact, their inability to successfully implement their new strategies due to management difficulties and control over the measurement process and strategic development resulting from it, based primarily on increasing importance of intangible assets. The data obtained from the system for measuring the indicators allow to adjust the strategy of the organization and the principles of its practical activity, and also allow to study the suitability of the measurement model. However, examining only one indicator cannot give an accurate picture of the state of any system, whether it is an enterprise or a non-profit organization. The need for a balanced set of measures is becoming increasingly important, both in terms of effectiveness and strategy. The advantage of this approach is that by using a combination of several key indicators, results are less likely to be affected by manipulation of information reports. Each ratio provides a relevant indicator of the company's performance or condition as far as possible and can be used independently as an indicator of financial viability or as part of a particular prospect. This study is a rational summary of the accumulations in the field of measuring performance indicators, which is appropriately made and shows in practice how one organization can achieve real value as a result of management of intangible assets, combining with organizational strategy. The introduction of a new content of the measurement methodology with the use of its three roles - compliance with standards, verification and improvement differ significantly and are much broader than the traditional concept of measurement as a tool for strategic management and relevant control. They are not based on the understanding that behavior can be controlled by measurement. They are based on the view that Balanced scorecards are a tool used to improve the course of institutional development and that it has other characteristics that should be measured and managed in a new different way.

2. DESIGN AND DEVELOPMENT OF STRATEGIC BALANCED SCORECARD

The starting point in developing a strategic balanced scorecard (BSC) for the highest level of organizational hierarchy is the preliminary coordination and unification of the state in accordance with observations of the peculiarities of the industry and the role of the specific organization. Therefore, the senior management needs to have sufficient time resources to organize and analyze the necessary information and create a reasonable opinion on this issue. From the beginning of development of the initial information database there is a problem with deformation of the information flow. By underestimating the advantages of the organization, which it would receive if it had a real and objective picture of the processes inside and around it, the managers would take away all the priorities of competitiveness in the market. This often happens due to the confidential nature of the specialized information at both company and institutional level. Senior management is usually unaware of the scale of the problems to be solved, which is why it is necessary for a wider range of specialists to have access to information of this nature. Access to information becomes especially important due to the fact that this process has a significant impact on the attitude of staff to the assigned and upcoming work. Staff behaviour is based on a value system and a scale of criteria constituting assessments based on past experience. The process of developing a strategic scorecard appears to be a special form of intervention and change of thinking. The change of thinking and the changing attitude towards work make the process of creating BSC a self-regulating process with a high cumulative effect. “Everyone who is familiar with the life of the organization knows that there are many control systems that affect daily activities. However, there is a lack of a systematic understanding of why and how these systems are used as a means to achieve certain programmes” (Panayotov, Kamenov, 1992). By organizing their management system based on the structure of BSC managers can achieve their main goal – putting the strategy into action (Simons, 1995). When organizations make the decisive transition from turning their strategic vision into action, they realize the real rise and gain real benefit from the development and implementation of BSC. The results of the originally developed BSC always lead to a series of management processes that mobilize and reorient the organizational efforts. The development of the initial BSC in an organization is achieved on the basis of systematic processes that create consensus and give clarity as to how the mission and strategy of the business unit can be brought into a system of current goals and indicators. This initial project needs an architect to build the structure, make sense of the process, and gather the basic information needed to create this system. In addition, a BSC must express the collective ideas and energy of the top management of this organization. If this management team is not fully involved in the process, a successful outcome cannot be achieved. Without the active support and participation of senior management Balanced Scorecard project cannot begin. Without the commitment and interest of the top echelon of the organization, it would be doomed to failure. The first step in developing an effective BSC is to reach consensus and support on the goals for which the system will be developed. However, the appealing ideology of BSC is not a sufficient reason for starting such a project. When the process is launched, senior management must identify and agree on the principal processes required for the project. The goals of the programme will help to:

- set the goals and indicators for BSC;
- engage project participants;
- a clear vision of the framework of processes for system management and implementation, which should follow the development of the initial BSC.

In conclusion, the initial impetus for the implementation of a project for BSC establishment may arise as a result of the need for:
- clarity and consensus between the vision and strategy of the organization;
- gaining management experience;
- explaining and commenting on the strategy;
- setting strategic goals;
- linking remuneration to strategy and goals;
- combining strategic initiatives and resources;
- securing investments in models and assets;
- creating a basis for strategic knowledge.

Once a consensus on the goals and future role of the BSC has been reached, the organization should focus on determining who will be its architect or project leader. The architect is responsible for maintaining the structure, philosophy, methodology of creation and development of BSC. "The role of the architect in this process is to provide guidance, to control the schedule of meetings, interviews and seminars, to check the availability of necessary documentation, input data and generally to control the implementation of the process in time and within certain limits" (Deming, 1985). The architect must manage both the cognitive or analytical process, and the interpersonal, even emotionally marked process in creating a team for resolving conflicts. The attempt to understand and implement the idea of BSC of Kaplan and Norton in to practice shows that the role of architects usually includes senior administrative staff of organizations. It is a systematic practice for organizations to use external consultants to assist the internal architect in the process of developing the BSC. Each organization is unique in itself and may wish to follow its own path of creating a BSC. This study describes a universal, typical and systematic plan for the development of BSC, the one that has been used in dozens of organizations and reflects the views of Kaplan and Norton on this issue. This position is justified by the prevailing opinion in the scientific community, according to which the prototype of the balanced scorecards of Kaplan and Norton are perceived as an established standard and a classic model. Properly implemented, this four-stage process engages senior management with the BSC system and involves the creation of a good scorecard, appropriate to the set goals.

2.1. First stage - Determining the system of indicators

Task 1: Selection of an organizational unit

Through consultations, the architect together with senior management determines a business unit for which it is appropriate to create a BSC. The initial process of creating a BSC has the best results in strategic business units, whose activities include actions along the entire value chain: innovation, production, marketing, sales and service. When BSC is developed for complex, functional units, joint ventures and non-profit organizations with complex structure, it is more logical for certain structural units to be engaged with individual balanced cards, although in such cases it is a question of common resources and other essential prerequisites complicating the creation of a unified BSC.

Task 2: Establishing a relationship between a business unit and a corporate organization
- The architect conducts interviews with key managers at the organizational level and at the departmental level to gather information on: financial goals of the strategic business unit;
- First-class corporate focus;
- Links with other strategic business units.

This information plays a vital role in managing the strategy development process.

2.2. Second stage - Agreeing on strategic goals

Task 3: Conducting the first round of interviews

The project architect provides initial data for BSC, as well as internal documents related to the vision, mission and strategy of the organization. At this stage it is necessary to gather information about the industrial sphere and the competitive environment, significant trends of market share and growth, competition and competitive offers, customer preferences and technological achievements. The interview process has several important goals, some obvious and others seemingly hidden. Its goals are to present the concept of BSC, to answer questions about the strategy and from here to get an initial impression of the strategy of the organization and its transformation into goals and indicators for BSC. The "hidden" objectives include focusing the thinking of managers on the process of turning the strategy and its goals into real operational indicators. "Among the hidden objectives there is the identification of potential conflicts between key participants in the project on the basis of personal or functional level" (Deming, 1985).

Task 4: Summary meeting

The meeting finalizes the efforts by creating a list and ranking (Kaplan, Norton, 1996) of the goals in the areas included in the BSC. Each of them, as well as its corresponding goals, are accompanied by notes and reflections collected during the interviews. The team also determines whether the preliminary list of priority objectives reflects the strategy and at the same time whether the objectives are interrelated by causal relations.

Task 5: Seminar for the senior management:

First part: The basis of this seminar is the task of the executive team to determine three or four strategic goals for each area of BSC, as well as a list of potential indicators for measuring each of them.

2.3. Third stage - Selection and development of indicators

Task 6: Meetings of working subgroups by areas

The architect of the BSC project works with the separate subgroups within several meetings, where they try to achieve four main goals:

- clarifying the formulated strategic goals in accordance with the intentions expressed at the first seminar;
- identifying the indicators that best express and inform about each goal;
- determining the sources of the necessary information for each of the proposed indicators;
- identifying key relations between the indicators for each objective within the direction and the scorecard and determining the impact.

Due to its unique nature, each strategy is characterized by strictly specific key indicators for the effectiveness of its action. This contributes to the definition of those specific indicators that most accurately communicate and summarize the meaning of the strategy itself. Although in Kaplan and Norton's long practice as consultants there is a list of key indicators in certain areas on the basis of which most balanced scorecards would be created, the art of defining unique indicators for each organization and each strategy is related to the efficiency mechanisms. It is these parameters of the specific indicators that express, communicate, implement and control the unique strategy. This is the reason to do the following in each direction at the end of information collection:

- list of objections for a given area, accompanied by their description;
- description of the indicators for each of the objectives;
- an illustration of how each indicator should be measured and valued;

- graphical model illustrating the connections between the individual indicators in the direction and in the scorecard.

Task 7: Seminar for the senior management: second part
The content of the second seminar is related to the preparation of a written document presenting the objectives of the BSC and its content to all participants, done in order to encourage all persons involved in the project to define target values for each of the proposed indicators, including target rates of improvement. The analysis of this event and application of different approaches – from comparative analysis to change rates, suggests setting planned values with a three to five year implementation period.

2.4. Fourth stage - Drawing up an implementation plan
Task 8: Development of an implementation plan
The working team defines flexible objectives and develops a plan for the implementation of BSC. This plan is committed to the interrelationships between indicators and information and data systems, to present the BSC of the entire organization, to stimulate and facilitate the development of indicators at the level of decentralized units. As a result of this process, a qualitatively new system of information at the executive level is established, which connects the metrics of the top management with those down in the hierarchy of the organization, as well as with the specific operational objectives.

Task 9: Seminar for the senior management: Part three
The goal of this seminar is to achieve a unified opinion on the issues related to the vision, objectives and indicators, to justify flexible objectives and the transformation of the strategy into consistent management processes. The seminar also links specific events and initiatives to change the objectives, indicators and tasks set in the BSC. At the end of the seminar the participants accept implementation programme, which will present the BSC project to the employees and integrate it in the management philosophy and develop an information model for it.

Task 10: Final stages of the implementation plan
To create value, BSC must be integrated into the organization's management system. The recommended period given (Jacobs, 1994; Strategic maps, 2004).) for putting BSC into action is within 60 days. A particularly important and significant moment at this final stage is the synchronization of the available information with the proven priorities of BSC. A very common phenomenon is the discrepancy between these two concepts, but it is normal for the updated information management system to catch up with the process by synchronizing with it. The BSC project implementation schedule, according to Kaplan and Norton's instructions, usually takes about 16 weeks, but this time it is not fully focused on the Balanced scorecard. The schedule depends entirely on the time available to the executive management for interviews, seminars and meetings. If the expert group can adjust its time to the needs of the project, which is rather hypothetical, the time for its development would be shortened. The role of the architect is of special importance in the beginning and to the end of the sixth week /holding the first seminar/. In the second half of the schedule, senior management through good communication and effective teamwork must take responsibility of the project. At this point, the role of the architect is already administrative and functional. The greater the responsibility of senior management, the greater the chance that BSC will become a new approach to managing the entire business. The mentioned schedule (Table 1) assumes that the organization has already defined its strategy and has carried out the necessary pre-project accumulations of information.

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I. Programme for determining the system of indicators	Project plan															
1. Selection of an organizational unit																
2. Establishing interrelationship																
II. Agreeing on strategic goals					Interviews Seminar I											
3. First round of interviews																
4. Summary meeting																
5. Seminar for the senior management I																
III. Selection of strategic indicators									Subgroups Seminar II							
6. Meetings of working subgroups																
7. Seminar for the senior management II																
IV. Drawing up an implementation plan													Development plan Seminar III			
8. Development of a plan																
9. Seminar for the senior management III																
10. Final stages																

Table 1: Typical BSC development schedule
(Source: authors)

The schedule would be extended if the accumulation of preliminary information created certain problems. Upon completion of the project implementation schedule, the senior management and middle management of the organization must have reached clarity and general agreement on the transformation of the strategy into specific objectives and indicators in its main areas, have reached unanimity on the plan for its implementation and if possible for the new systems and responsibilities and provision of information about BSC. Recently, the number of organizations that implement strategic balanced scorecards in their practice has been growing. Many organizations use this method under another name, while developing their own scorecard format, somewhat reminiscent of the classic prototype. All models have one thing in common.

They provide an opportunity to measure and control such parameters of the activities of organizations that are not analyzed by the methods of traditional financial control. Each subsequent version of the BSC manifests desire for higher detail in terms of the aspects that may interest more potential stakeholders.

3. CONCLUSION

Analysis of the “good practices” for the creation of specific conditions and prerequisites, as well as the structuring of targeted model proposals allows several general conclusions to be made (Terziev, Stoyanov, Georgiev, 2017a-c; Terziev, Georgiev, 2017d; Terziev et al, 2017e; Terziev et al, 2017f):

- First. The ideological and conceptual features of the balanced scorecard require the creation of certain conditions and the definition of organizational and institutional prerequisites in order to proceed to the design of such a management model. The goal set for materialization through the methodology of the balanced scorecard predetermines the form, structure and content. It is for this reason that every detail (element) of the structure proves that its content determines the chosen formal manifestation. Referring to the principles of constructiveness, continuity and system, the way of thinking “indicator - index - perspective – card” turns the scorecard model into a constantly evolving process and transforms the organization or system in which it functions to a kind of self-improving structure, regardless of scale.
- Second. The review of the design technology and the implementation technology form and impose the understanding that the more frequently used scorecards samples represent in their essence a macroeconomic model for the development of the organization. The motivation for this can be found in the key presence and role of the principle of quantifying and defining time limits for tasks that are mainly focused on the implementation of strategic models of thinking and behaviour. Based on this logical line, the technology of creation and introduction in its nature and content is a process of continuous adaptation of the organization or system to the changing conditions of the social environment and the stated expectations of society.

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BRAIN DRAIN AND BRAIN GAIN - COSTS AND BENEFITS OF MIGRATION IN EU

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ABSTRACT
The free movement of labour is besides the free movement of goods, services, and capital one of the four essential freedoms of movement in the European Union (EU) and is considered the cornerstone of convergence policy. These freedoms are necessary both for the coherence of the EU's internal market and for the efficient functioning of the Economic and Monetary Union (EMU). Migrations are not only an economic issue but also a cultural and political one. People are mostly voting with their feet for economic reasons, but this trend was reinforced by recent waves of political migration to Europe from volatile North African regions following the Arab Spring movement and wars in Iraq, Syria, and lately also from Ukraine. Without political motives for migration in mind, migrants in Southeastern European countries have mostly an economic agenda. There is a huge amount of literature discussing the pros and cons of migration from both perspectives: emigration and immigration countries. The quantitative analyses are mostly inconsistent and disagreeing in their conclusions. This paper attempts to go back to the basic theoretical deductive-nomological approach without any prejudice regarding migration directions. This paper is at the same time the theoretical beginning but also the result of a project regarding migrations: their reasons and their consequences.
Keywords: *Migration, brain drain, brain gain, immigration, emigration*

1. INTRODUCTION

Economic migration, often referred to as labour migration, is the movement of economically active persons (Böhning, 1984). The term *economic* implies a sense of finality or teleological (instrumental) rationality on the part of migrants. Labour migration involves not only the transfer of time, but also of human capital. Human capital belongs to the individual, but human capital is the result of complex interactions that take place in the cultural, political, and economic spheres of human activity. When we speak of labour migration in Europe, we refer to foreign nationals who meet legal entry requirements. Poverty alone is not enough to cause international migration. When we talk about it, we mostly think about populations above the poverty line who are the driving force of contemporary migration, as opposed to forceful displacement or political persecution. Because of prevailing pull factors, workers migrate to countries with exceptionally high standards of living and good employment opportunities. Economic, social, political, and environmental factors all contribute to migration (Wickramasekara, 2001), but in the case of asylum seekers, push factors dominate. Migrants expect an improvement in their welfare, which is favoured not only by the rate at which the country of immigration develops relative to the country of emigration, but also by changes in sectoral labour demand. Migration and migrants can be classified as intra-European or extra-European, and as permanent migrants or guest workers, depending on the duration and motive for their stay. Economic migrants are target earners, but their position as temporary guest workers can easily become permanent due to family, cultural, social, but also "social security" reasons.

2. THE THEORETICAL FRAMEWORK

According to the standard economic model with a homogeneous and fully mobile labour force in two countries (Appleyard, Field, 2014), labour migrates from regions of abundance and lower wages to areas of scarcity and higher wages. Wages rise in the out-migration country and fall in the immigration country as a result of migration. The remaining workers in the country of emigration are better off, while the owners of capital are worse off. The case for emigration becomes much stronger when there is a labour surplus. According to standard economic models with homogeneous and perfectly mobile labour forces in two countries (Appleyard, Field, 2014), labour migrates from areas of abundance and lower wages to areas of scarcity and higher wages. Migration raises wages in the emigration country and dampens the push to emigrate by increasing the anchoring effects through creating better conditions to live, work, and prosper. At the same time immigration lowers wages in the recipient country. The remaining workers in the emigration country benefit, while the owners of capital suffer. In the presence of labour surplus, the case for emigration becomes even stronger. According to this model, the EU, and espetially the older member states with the higher standard of living, as a net absorber of migrants, should be the net beneficiaries of immigration. In terms of appropriating gains, migration disproportionately favours capital as a factor of production. For this reason, labour in the country of immigration opposes immigration, while capital supports it. Immigration of labour causes the labour supply curve to shift to the right, resulting in a new, lower equilibrium wage. By paying this new lower equilibrium wage to the immigrants, native labour is not harmed and the producer makes a net profit equal to the difference between the two wages (Appleyard, Field, 2014). The combination of labour surplus effects, compensation for losers by stocking up their social, pension, and medical funds, and taking into account the benefits from immigrant remittances can lead to a win-win situation for both countries and for all factors of production. The question of who benefits from labour migration in EU is closely related to the question of whether the liberalisation of goods and services markets and the mobility of the factors of production capital and labour have negative effects on the real wages of some workers.

2.1. The Heckscher-Ohlin-Stolper-Samuelson- Rybczynsky theorem

The statement in the title of the paper is based in part on the classic answer to this question by Wolfgang Stolper and Paul Samuelson (1941) following the work by Eli Heckscher and Bertil Ohlin, who linked changes in factor prices and then factor incomes to trade liberalisation, and in part on the work by Rybczynsky, who linked changes in factor prices to factor endowments. From the Heckscher-Ohlin-Samuelson and Rybczynsky theorems one could easily deduce that:

1) EU enlargement creates new investment opportunities by raising real interest rates and wages in capital-constrained markets if capital and labour are complements.
2) Lower wages lead to higher profits for capital owners despite lower productivity, but most of that gets reinvested for the sake of both capital and labour.
3) EU enlargement allows for greater economies of scale and higher profits.
4) Economic integration of the new member countries allows for greater diversification of capital against investment risks, which further increases the return on capital.
5) All member states profit from EU enlargement, but some more and some less, depending on the ratios of factor endowments.
6) Countries of immigration, profit more by enlarging their economic labour resource base, by lowering the wage rate and increasing profits for capital owners.
7) Countries of emigration, mostly loose the less skilled labour as well as the unemployed that finally join the labour force and unburden the social system remitting some of the earnings to the country of origin.

8) From careful analysis of the Rybczynsky theorem, one might infer that the better-educated migrants who emigrate to richer countries in search of higher wages exploit the education pool in less developed countries to the advantage of rich countries.

While the Heckscher-Ohlin theorem predicts an increase in aggregate welfare for both labour and capital, Stolper and Samuelson come to the opposite conclusion, that liberalisation predominantly benefits the owners of abundant factors, in this case capital. Given these assumptions, it is not surprising that the owners of the relatively abundant resources (capital) in the EU politically prefer the free movement of goods, services, capital, and labour, while the owners of the relatively scarce resources (unskilled labour) in the EU politically prefer restrictions on trade and migration (Appleyard, Field, 2014).

2.2. Technological progress and labour productivity

The decline in real wages of low-skilled workers can also be attributed to domestic technological progress. Labour productivity increases as a result of technological progress. As a result, the terms-of-trade effect and the productivity effect must be distinguished. The substitution of low-skilled labour by capital (either in the form of machinery, human capital or both) is the basis of economic growth (Burda, Wyplosz, 2013). The relationship between the growth of real wages and productivity determines the demand for labour. When the growth rate of real wages exceeds the growth rate of productivity, labour demand falls and unemployment rises (ceteris paribus). New jobs have replaced old jobs throughout history, and economic progress may be painful for some, but it is by no means a systematic job killer (Burda, Wyplosz, 2013). Capital inflows into the new member states can temporarily stall domestic technological progress by using cheap foreign labour and shifting production to labour-intensive technologies. Low-skilled workers in the EU face a choice between lower wages or unemployment on the one hand, and upgrading their human capital on the other by means of education.

2.3. Labour mobility and EMU

The main adjustment mechanisms can be derived from the freedoms of trade, capital movements and labour migration. If there is a shortage of skilled labour in emigrant countries, the loss of scarce human capital will reduce the per capita income of those countries, but then again, if there is a shortage of certain human capital in the country of potential emigration, a well functioning and free labour market should remunerate such a human capital at a higher wage rate. If there are no unique labour markets, there should also be no unique wages. The "brain drain" problem has occurred to a some extent in Europe. It is present on the market for medical services. Nurses and doctors emigrate from the new member states to the old member states. But these are regulated wages by the individual states' medical and social services. Nurses and doctors are scarce professions in both new and old member states. The fact that their wages are more than double in the new member states than in the old ones is reason enough to migrate. If these prices where left to the market forces, this reason to migrate would be much less clear. But this is an impossibility due to the organization of the social systems in different EU member states. As was shown here, migration has many desirable and intended but also undesirable and unintended consequences, positive and negative externalities. Migrants primarily bring to the country of immigration an increase in productivity and an increase in positive externalities. This argument is based on the assumption that the labour force in the emigration countries is relatively scarce in terms of human capital (which actually is not true) and that, because of the Heckscher-Ohlin-Samuelson theorem, these countries specialise in the production of low-skilled migrant labour. Skilled labour and capital are the relatively abundant factors of production in the old EU member states.

Because of the balance of payments tautology, exports of goods rich in these two factors must be financed to a large extent by capital transfers. Since the Central and Eastern European Countries (CEECs) consume and import these goods beyond their means, the current account deficit (the difference between domestic investment and savings) must be financed by investment flows from the EU-15. Actually, it is the other way around: the capital account leads the current account balance. Ultimately, the increase in purchasing power in the CEECs due to foreign direct investment is a strong disincentive to emigrate, or a strong anchoring factor for potential migrants. The liberalisation and institutionalisation of the four freedoms mentioned earlier leads to an increase in trade, investment and migration between the new and old member countries compared to any period before the existence of the Economic and Monetary Union (EMU). Although there is widespread agreement on the overall positive effects of liberalisation on states and societies, some members or segments of the population in the old member countries may suffer. In the short term, rigid prices and wages lead to increased unemployment. Increased migration of highly skilled workers from East to West could exacerbate the impact on wage differentials. Because it is a relatively scarce factor, wages are likely to be relatively higher, providing a strong incentive to migrate. The capital movement has the largest negative impact on the least productive factor, the low-skilled labour, in the old member countries. According to the standard macroeconomic model, factor shifts have negative temporary effects on wages and wealth since any such shift requires a period of adaptation. Less developed new member countries are too small to affect domestic factor prices (especially wages) in the old member countries (unless these prices are regulated by the state), but they can affect the sectoral reallocation of output in the long run.

2.4. Migration of extremes

Distinguishing between three types of factors of production (low-skilled, medium-skilled, and high-skilled labour), it is possible that, under the assumption of full specialisation, the relative price of low-skilled labour rises faster than the price of high-skilled labour in relative terms because of the Balassa-Samuelson effect and the Baumol-Bowen effect. One of the consequences of rising wages in the high-skilled sector would be an exodus of high-skilled workers to the old member countries. Another consequence is an exodus of relatively unskilled workers who cannot find work in the new member states but can find work in the old member states with higher wages. From the above economic consequences based on the relative pricing of labour, it can be deduced that migration effects largely relate to the extremes: high-skilled and low-skilled labour. The strong inequality condition must be met to realise capital and labour migration. In the short run, rigid prices and wages, as well as capital and high-skill flows, lead to an increase in unemployment in the old member countries. But then again, unemployment is a disincentive to migrate. Ultimately, the increasing specialisation of industries and human capital could have a greater impact on wage differentials. Also, bigger markets do better when markets are more specialized and there is more division of labour.

2.5. Immigration and public finances

Demographic change poses a major problem for social security systems. The ageing of the population on the one hand and the declining number of births on the other reduce the number of current and future workers and contributors to the social security system. Immigrants may temporarily help stabilise the social security system, but they are not immune to the ageing process in the long run, which exacerbates the problem. In the long run, these problems can only be solved by reforming the pension systems. Due to the lack of primary statistics, it is difficult to quantify the impact of immigrants on public funds. Miegel (1984), Wehrmann (1989), Loeffelholz, and Koepp (1998) have attempted to estimate the impact of immigrants on Germany's public finances.

Miegel (1984) and Wehrmann (1989) conclude that immigrants make a negative net contribution to government finances. According to some other empirical studies, immigrants make a positive net contribution to government finances in Germany (Loeffelholz, Koepp 1998). The main methodological difference between these works is that they consider indirect effects on public finances differently. Bauer (2002) analyses the impact of social security systems on migration incentives. He argues that the high share of immigrants receiving social benefits has a historical background and cannot be projected onto future migration (Bauer, 2002). Some recent estimtes also do not come to clear conclusions (Sinn, Werding, 2001).

2.6. Labour mobility and EMU

Free movement of labour and flexible labour markets ensure efficient distribution of labour. The self-regulation of the labour market continuously and optimally adjusts the stock of migrants to the level of economic development in the new member states (Sinn, Werding, 2001). The Tiebout theorem and later the theory of optimal currency area (OCA) consider labour migration as one of the most important adjustment mechanisms. According to the OCA theory, labour mobility should mitigate the costs of an asymmetric shock if the exchange rate is permanently fixed. We argue that this thinking carries some dangerous caveats. Labour migrations do not only entail the movement of labour as a factor of production in the sense of the time endowment of physical labour. Labour migrations are also characterised by the transfer of human resources in the sense of human capital and knowledge. In a modern industrial society, where physical capital requires human capital (i.e., there is a complementary relationship between the two), migrations could become self-reinforcing. The argument is that the outflow of skilled labour negatively affects a country's technical know-how and reduces the country's development potential by reducing its endowment of human and knowledge capital. If a country enters a recession and cannot meet its obligations, further out-migration may occur. Because of the complementary relationship between human and real capital, there is a risk of a vicious circle of economic decline. Less human capital does not increase its relative demand ad infinitum. The productivity in the Sahara region where there are no people is zero!

3. THE COST-BENEFIT ANALYSIS OF MIGRATION

Foreign workers are hired because their skills are in demand. Most evidence shows that labour immigration is beneficial to host societies in the long run (BHO, 2001). Emigration countries can also benefit from remittances from migrant workers. Other benefits to sending countries include reduced unemployment and knowledge importation through return migration when unskilled workers eventually migrate back with higher skills. According to Borjas (1996; see 1999), the costs and benefits of immigration can be divided into direct and indirect costs. Direct costs include monetary expenditures that are directly quantifiable, such as increases in social security spending, hospital costs, etc. The traditional approach to fiscal accounting compares the tax burden of immigrants with the government entitlements and subsidies received. We believe that this tax accounting system is inadequate and conceptually flawed. First, the basic budget rule of a unified budget states that all tax revenues must be used to cover all tax expenditures. We propose that immigrant cost-benefit analyses should be based on the opportunity costs of using public goods, not on the effective and already appropriated sunk costs. Our thesis is based on the assumption that tax dollars are primarily used to acquire nonexclusive and noncompeting public goods with an opportunity cost of zero (Mance et al. 2015). The economic cost-benefit analysis of immigration must be based on the economic costs known as opportunity costs. We recognise that tax euros do not cover the entire cost of the transaction, which makes the analysis even more difficult.

3.1. Displacement costs

Let us now consider the costs of displacement. They arise when immigrants lower the wages of natives, either by accepting lower wages or by displacing natives who then move to another area or find work in another sector. According to Baldwin and Wyplosz (2019) various estimates of the elasticity of native wages with respect to the number of immigrants, a 1% increase in the number of immigrants lowers wages by no more than 1%, with most estimates being about +/- 0.3%. The final impact on wages is determined by the balance of complementary and incremental impacts on domestic jobs. The overall impact on wages is negligible. Nevertheless, the newly introduced minimum wage legislation in Germany is certainly directed against low-skilled immigrants. An immigrant whose marginal revenue productivity of labour is not enough to earn the minimal wage, will not and shall not be employed. This is a huge disincentive to migrate: a real bouncing factor.

3.2. Immigration benefits

Let us now consider the benefits of immigration. These include increased economic prosperity and living standards for both immigrants and natives, as well as cultural diversity. The decline in wages caused by immigration is more than offset by increased earnings for employers. Immigrants provide low-wage labour. Consumers benefit from lower unit labour costs. The domestic economy always benefits at least as much as the domestic labour force loses. The benefits do not end with cost savings. Immigration grows the economy by creating additional economies of scale in production through increased consumption. The economy is able to produce more at a lower cost. Not only do migrants help produce more, but they also diversify the product line through cultural diversification. Immigrants contribute to a country's economic and cultural diversity. Increased labour mobility usually leads to overall gains for both emigration and immigration countries. There may be some negative sectoral distributional effects within countries. This depends largely on the complementarity between immigrant and native labour. European countries have increasingly become service-based economies with fewer people employed in manufacturing and agriculture. As living standards and incomes rise, European workers are less willing to take on demanding, difficult, and dirty jobs. On the other hand, new technologies have created additional demand for high skills that European countries (e.g., Germany in information technology, as well as in medical services) cannot meet. There is a problem of skills mismatch that cannot be solved in the short term. This represents a structural change in European economies. While there are still some labour reserves in the form of unemployment, low labour force participation rates and low labour mobility, these problems are also structural in nature. Despite the free movement of workers, labour mobility within the EU is still rather limited with a mobility rate of 5% or less. This is partly due to the ageing of the labour force, but also partly due to the welfare system. On the other hand, sectoral mobility in the EU is extremely high. This very high sectoral mobility partly compensates for the very low immigration rate.

3.3. The net balance

A common belief is that immigrants cause unemployment. In a strict economic sense, this may be true only if immigrants change the structure of the labour market. The most likely outcome of immigration will be some increase in employment, some decrease in wages, and probably a neutral effect on unemployment (Baldwin, Wyplosz, 2019). The final impact on unemployment will be determined by the balance of complementary and substitution effects of the immigrant labour force on the native labour force. There is no reason to doubt the ability of European countries to regulate immigration in the sense of allowing only the settlement of complementary workers. Immigration improves the overall efficiency of the European economy and that of the emigrant countries.

The gains from this efficiency improvement are shared between Europe and the emigrating countries. Depending on the substitution and complementary effects of immigrant labour, there may be some sectoral losers in each country. For example, if the immigrant labour largely substitutes for the native labour, the losers are European workers and capital in the emigrating country. If immigrant labour supplements native labour, labour productivity increases and so does demand, which has a positive effect on wages and employment. This would be a clear win-win situation for the country of immigration and for the immigrants. Immigration of additional labour is very often labour with high human capital. The countries of origin benefit especially from the return of highly skilled labour migrants. European migrants usually have strong ties to their home country. This makes the decision to return even easier. Some of the receiving countries (e.g., Germany) tend to discourage naturalisation, and some countries (e.g., Switzerland) do not allow naturalisation. This further encourages return migration at some point. It is possible for immigration countries to define the migration policies at issue in such a way to pursue an active brain drain policy by cherry-picking the available migrants. This is exactly what Germany and Switzerland in Europe do.

4. CONCLUSION

Labour migration is not only an adjustment mechanism designed to compensate for differences in economic welfare, economic growth rates, and wages. It is a multicultural endevour where many other adjustments beyond the economic ones take place. For some people, the decision to migrate is the most important one they are going to take in their lifetime. Sometimes these decisions are not one-way decisions to migrate. Most migrants do not loose contact with their country of origin, and some of them at one point desire to return. However, if labour migration is one-way, it can exacerbate the problem because of lost human capital and purchasing power. Labour is not just a commodity or a factor of production. Labour migration affects all aspects of life. The effects and side effects of immigration and emigration are very complex and cannot be predicted to the detail. Wage differentials motivate migration from Southeast to Nordwest: from relatively capital-poor and labour-rich countries to relatively capital-rich and relatively labour-poor countries. There is unfortunately no single formula describing the migration of labour according to its human capital endowment since there is no single labour market. There are as many labour markets as there are human specialisations. Thus, if we aggregate them into three categories: the unskilled labour, the medium skilled labour, and the highly skilled labour, we can observe the highest pressure on workers at the two extremes of the productivity scale. This is what happens to the EU labour market at present. The low skilled labour and highly skilled labour emigrates relatively more in search for better wages while the relatively abundant and easily replaceable medium skilled labour does not. The role of migration as a tool to postpone the problem of public finances has been recognized by the more developed member states. The demographic problem of the new EU member states is likely to be worse than in some older member states since many of the migrants tend to leave forever and they represent the population in its prime working years. The classic Heckscher-Ohlin-Stolper-Samuelson-Rybczynsky theorem has a deductive conclusion that every factor of production has a natural enemy or friend in another factor of production. Now, this theory is an oversimplification relying too much on the principle of substitution. Capital and labour are foremost complements and thus the real "enemy" of the low-skilled labour force is the inflexibility of labour markets, the lack of internal mobility and lack of education possibilities oriented to market demand. From careful analysis of the Rybczynsky theorem, one might infer that the better-educated migrants who emigrate to richer countries in search of higher wages exploit the pool of education in less developed countries to the advantage of rich countries.

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THE INCREASED RISK OF POVERTY AND SOCIAL EXCLUSION IN EUROPE: THE CASES OF PORTUGAL AND GERMANY

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ABSTRACT

The issue of poverty and the risk of social exclusion, due to growing social inequalities, continues on the rise, further aggravated by fresh crises, from energy, to high levels of inflation, and conflicts. This phenomenon deserves to be examined in Europe, which has an agenda designed to fight inequality, with a view in prospect of avoiding extreme ruptures, such as the first and second World Wars. In this context, Europe mirrors very asymmetrical realities, often dividing itself between rich nations and poor nations. Therefore, the cases of Portugal and Germany were analysed, in order to reflect and capture this asymmetric reality. The results obtained in this research are somewhat surprising, as they show that, despite the different economic magnitudes of both countries, Portugal, contrary to what one might suppose, even presents a slightly better panorama than Germany, as the latter is strongly influenced by the integration of the former German Democratic Republic territories and the integration of waves of immigration coming from poorer countries, not only from Europe, but also from battered regions overseas, as is the case of the Middle East. It can also be suggested that wars resulted in a reduction of economic inequalities. Even if unintentionally, this fact may also lead to justify the occurrence of new wars in Europe, given that the number of poor people and people at risk of social exclusion are increasingly worrying and the European strategy of eradication of poverty, as in the pre-war periods, is not having a significant effect on the economy and on the overall society. In particular, while is not resulting in a broad reduction of inequality, and, therefore, while showing inability to effectively reduce social exclusion, risk poverty, and poverty itself.

Keywords: *Inequality, Capitalism, Performance, Political Economics, Europe, Portugal, Germany*

1. INTRODUCTION

The most recent severe crises of poverty and social exclusion in the history of Europe date back to the periods of the two world wars, namely the first in the period between 1914-1945 and the second from 1939-1945, followed by periods of recovery. However, the crises were very different from each other, being felt equally differently in European countries. Indeed, according to Thomas Piketty in Capital in the Twenty-First Century, the compression of income inequality (in France) is significantly more concentrated in the First World War period 1914-1945; since in the Second World War (1939-1945), despite the inequalities, in contrast to the First World War, they decreased significantly. Indeed, according to the author, the Second World War was different in that there was a more general reduction in income inequalities. In certain cases, this was the result of the “chaos” of war and occupation, or the structural disruptions imposed by post-war conditions. Interestingly, it was mostly the chaos of the war and the concomitant economic and political shocks that contributed substantially to the reduction of social inequalities in the 20th century. In fact, there has not been a gradual, consensual, and conflict-free evolution towards greater equality. Therefore, in a closer analysis of the 20th century, it was the war that helped to minimize inequalities and not the harmonious democratic or economic rationality, as one might infer. Thus, according to Anthony Atkinson (2015), in the immediate post-war decades, income inequality fell in several European countries, due to factors such as: promotion of social provision financed by progressive income taxation; pension guarantees for the elderly; extension of social guarantees to people with disabilities and other groups hitherto totally unprotected, among others. However, three quarters of a century later, social inequalities and poverty once again seriously threaten Europe, curiously also the War. In fact, there are 96.5 million people at risk of poverty or social exclusion in the European Union, i.e. 21.9% of the population (Eurostat, 2021). In this context, the European Union's economic growth strategy for the next decade, called the Europe 2030 strategy, aims to act, having as priorities the reduction of the number of people at risk of poverty or social exclusion in the European Union by at least 15 million people. It is a diagnosis of the situation of poverty and social exclusion in Portugal and Germany and its interpretation in the light of the European strategy to combat the phenomenon that this essay deals with. The European reality is very asymmetrical, and, despite the European convergence strategy, there are clear signs of distance between countries, being particularly evident between Portugal and Germany, which can illustrate, by analogy, the difference between the rich and poor nations of Europe. To this end, the essay is divided into five sections, this being a brief introduction to the topic of poverty and social exclusion in the European Union; the second section presents the European vision of combating poverty and inequalities; the later sections characterize the Portuguese and German cases. Finally, the final considerations are presented.

2. THE EUROPEAN VISION OF FIGHTING POVERTY AND SOCIAL EXCLUSION

The European Strategic Vision 2020 set out to achieve “smart, sustainable and inclusive growth”, with a new ambition to reduce poverty for at least 20 million people. However, for different reasons, the target has not only not been achieved, but currently diverges, amounting to 96.5 million people at risk of poverty (Eurostat, 2021). Thus, although it continues to be an important new social initiative, the European Pillar of Social Rights has been nothing more than a framework of programmatic principles – not mandatory rights –, for which reason it has not been able to ensure, in a proven and sustained way, real improvements in people's quality of life. However, the new Commission and the European Union institutions have a crucial opportunity to launch a new strategy to promote effective social and sustainable development, founded (by the worsening of the situation, both due to the Covid-19 Pandemic and the return from the war to Europe) in rights and supported by a threefold proposal: i) 2030 Agenda; ii) Sustainable Development Goals (SDG); and iii) Social Pillar. In fact, the eradication of poverty and social exclusion was already a prerequisite common to all of them, along with the promotion of well-being and the reduction of inequalities, which is even more justified in the current context characterized by the post-covid-19 and the war refugee crisis.

Such efforts for poverty eradication and improvement of well-being are also supported by the European Anti-Poverty Network (EAPN) actions across European countries, as is the case of Portugal (vid. e.g. EAPN, 2020a). The actions of EAPN at national and regional level have been reported and discussed in some literature, as is the case of Portugal (Leite et al., 2021a) and its North region (Leite et al., 2021b). However, this will require an integrated and concerted strategy of action, including a significantly more ambitious new anti-poverty target and a joint plan of action to implement social rights." (EAPN, 2020b), as summarized below, with some SDG outlined, in Table 1.

SDG	European Pillar of Social Rights
1. Eradicate Poverty	No explicit principle, but dashboard indicator (AROPE – At Risk of Poverty or Social Exclusion). Most principles can help. Explicit poverty only in 11: childcare and child support - right to protection against poverty.
2. Eradicate Famine	No explicit principles. 6, 12, 14, 20 could guarantee adequate income
3. Ensuring healthy living and promoting well-being for all ages	10, 15, 16 and 18 covering a healthy, safe, and well-adapted work environment, data protection and the right to timely access to affordable, preventive and curative health care of good quality. 20: Access to services, as these also contribute to health and well-being, particularly if they include social services
4. Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all	1. Right to inclusive and quality education, training, and lifelong learning
5. Achieve gender equality and empower all women and girls	2. Gender equality
6. Ensuring availability and sustainable management of water and sanitation for all	20. Access to essential services - water is mentioned
8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	Two chapters of the EPSR are dedicated to employment - access (1) and fair working conditions (2). the key principles Including 4,5,6,7,8,9,10,13, and 15
10. Reducing inequalities within and between countries	No explicit principles. 3: Equal opportunities for all groups, 17: Inclusion of people with disabilities, 19: Housing and assistance for the homeless

Table 1: Sustainable Development Goals and Social Pillars
(Source: EAPN, 2020a,b)

It should be noted that, in the context of the European Union, the poverty threshold is defined according to the standard of living of each member state, and this threshold is updated every year. The threshold is officially calculated by INE, and Eurostat as follows "60% of median income per equivalent adult" (Rodrigues et al., 2016, 50). However, this formula hides considerable variations between the member states of the European Union.

It is these variations between Portugal and Germany, between a country in Southern Europe, with a weak economy, recently intervened by the International Monetary Fund, and one of the strongest, if not the strongest, economies of the European Union, Germany, that motivate to know why Portugal is, in terms of poverty, deviating from European convergence. Another example of conflict related to the indicators is the calculation of the poverty line, since in addition to the member states having different notions of poverty and social exclusion, the poverty line is also relative in terms of its setting, because if incomes are reduced by a generally in society, the poverty threshold will fall. The consequence of this is that a part of the population will be able to get out of poverty despite their incomes remaining unchanged (Rodrigues et al., 2016). For example, Portugal and Germany are part of the same European Union statistic, as these percentages of people at risk of poverty or social exclusion are calculated by calculating a weighted average of the national results. A brief comparison of Portugal versus Germany, including some risk of poverty and social exclusion's Key Performance Indicators for the year 2020, and recent variation rates, is shown below, in Table 2.

2020 KPIs	Portugal	Germany	Variation
At-risk-of-poverty rate after social transfers	16,2%	18,5%	2,3%
Population at risk of poverty or social exclusion	2,4 Million	19,7 Million	17,3%
Severe material deprivation rate	4,6%	N/D	N/D
Population living in households with very low work intensity	5,1%	9,5%	4,4%
At-risk-of-poverty rate of the employed population	9,5%	10,6%	1,1%
Overhead rate of housing expenses	4,1%	19,9%	15,8%

Table 2: Risk of poverty and social exclusion's KPIs for Portugal vs. Germany (Source: Pordata, 2020)

3. CHARACTERIZATION OF THE PHENOMENON OF POVERTY AND SOCIAL EXCLUSION IN PORTUGAL

According to the Survey on Living Conditions and Income of People in Portugal, carried out in 2021 on income from the previous year (2020), 18.4% of people were at risk of poverty, meaning 2.2 percentage points more than in 2019 Thus, in 2020 the at-risk-of-poverty rate corresponded to the proportion of inhabitants with net monetary income (per equivalent adult) of less than 6653 euros per year (554 euros per month). In this context, the poverty and social exclusion of the group of working poor (working poor) is gaining more and more visibility in the context of European member states, particularly in Portugal, where "poverty among individuals over 19 and employed had increased by 1.4 percentage points (9.6% in 2009 to 11% in 2014) is now deepened, identifying the main characteristics of Employees who are in poverty despite having a salary, the working poor." (Rodrigues et al., 2016, 101). According to Rodrigues et al. (2016, 12-13), point out that between 2010 and 2014 "poverty in households with children evolved in a particularly unfavourable way", surpassing even the elderly.

In general terms, based on Pordata data for Portugal in 2020, the at-risk-of-poverty rate after social transfers is 16.2% (2020). In turn, the population at risk of poverty or social exclusion: total and by sex is 2.4. The severe material deprivation rate: total and by sex corresponds to 4.6%. The population living in households with very low work intensity: total and by sex is 5.1%. The at-risk-of-poverty rate of the employed population is 9.5%. Finally, the overhead rate on housing expenses: total and by type of occupancy of the accommodation is 4.1% in Portugal. It should be noted that according to the article Top Incomes in the Long Run of History by Atkinson et al. (2011), Portugal did not face its greatest risks of poverty and social exclusion, due to inequalities during the wars, like most of Europe. In fact, according to Alvaredo (2010), in Portugal this happens after 1970, and particularly 1974, the revolution year. The author notes that this "coincided with the final period of the dictatorship and can be attributed to the loss of African colonies and the left-wing movement of the revolutionary government". after 1974, when a process of nationalization broke the concentration of economic power in the hands of industrial-financial groups.

4. CHARACTERIZATION OF THE PHENOMENON OF POVERTY AND SOCIAL EXCLUSION IN GERMANY

For many years the issue of poverty and social exclusion did not have much weight on the political agenda of the Federal Republic of Germany, being marginal in the context of economic development. However, in 1998 a red-green federal government assumed the existence of poverty and social exclusion in the country and placed the issue on the political agenda (Hanesch, 2010). Since then, social policy has taken over the fight against poverty and social exclusion, becoming one of its main concerns, in the last decade, an unprecedented situation in the country. The government took on the need to fight poverty in affluent German society. After this recognition of the problem, new actions were launched during the period of the Grand Coalition (2005 to 2009), integrating the fight against poverty and social exclusion in social policy in Germany (Hanesch, 2010). This trend continued with the black-yellow governmental coalition (Kabinett Merkel II) in Berlin and was even one of the central points of the political-social debate, mainly due to the decision of the Federal Constitutional Court on the standard benefits of SGB II and XII (Hanesch, 2010). Currently, according to Eurostat data (2020), 21.6% of the German population is at risk of poverty or social exclusion, having increased by 2.6% since 2017. In turn, the Gini coefficient is at 30.5% lower value than in 2018 of 31.1% (Gini coefficient, 2020). It should be noted that the situation is below the EU-28 average (22.4%) (AROPE, 2019b). However, more recently the situation of poverty has shown an upward trend, because of the current economic recession, a possible consequence of the post-pandemic context and the war in Ukraine. In fact, the number of unemployed people has decreased significantly, from 4.9 million in 2005 to 2.53 million in 2017 (Bundesministerium, 2017). These figures reflect a sharp drop from 11.7% in 2005 to 5.7% in 2017 (Statistik der Bundesagentur für Arbeit, 2017). It should be noted that in 2020, the number of unemployed increased slightly to 2.7 million people. Unsurprisingly, the area of the former German Democratic Republic (Deutsche Demokratische Republik) is the most affected by unemployment since 1995. However, the gap between the western and eastern parts of Germany has been decreasing from 18.7% in the eastern part. and from 9.9% in the western part in 2005 (the year with the highest value) to 7.6% in the eastern part and 5.3% in the western part in 2017. Between 1995 and 2008 the unemployment rate for women was higher than for men. However, this trend seems to have been reversed, as, in 2009, women recorded lower unemployment numbers. For example, in 2021 men had a rate of 3.5% and women 2.8% (Country Economy, 2022). Regarding populations at risk, children stand out in the negative. In fact, one in five children under the age of 15 is at risk of poverty in Germany.

This means that around 2.1 million boys and girls living in families with less than 60% of the average net income are at risk of poverty and social exclusion. About half of the 2.1 million children live in households that receive social benefits, with the remaining half receiving no support (NAK, 2019). Among the most affected are women. According to figures published in the micro-census (Mikrozensus), the poverty rate for women is more than one percentage point higher than for men. Even because women have salaries on average 21% less than men. The situation is even more serious in the specific group of single-parent families (Alleinerziehende). Effectively, the poverty rate among single-parent families is 31.5%, 90% of which are women. It is even the worst group in a situation of poverty and social exclusion in Germany, representing more than three times the highest average of all those living in the country (NAK, 2019). German society values performance-based equality. That is, “personal satisfaction and social cohesion are closely linked to the question of whether performance is rewarding and whether income distribution, opportunities for social participation and social promotion and security are perceived as fair” (Bundesministerium, 2017, 6). In this sense, the Ministry of Labour and Social Affairs (Bundesministerium, 2017, 6-7) in its 5th report on poverty and wealth argues that to promote social cohesion based on the principle of equality between contribution and performance, it is necessary to focus on the following five areas of intervention:

- Continuous work with performance-based compensation.
- Children, youth, and education policies should offer better individual support, independent of parents.
- Access to other socially necessary goods and services, subsistence, in addition to a reliable social security system, must be guaranteed.
- Financing of public expenditure and investments, fiscal sustainability and a fair and performance-based taxation system must also be ensured in the future – so that everyone who benefits also contributes.
- Political stakeholders, social partners and civil society must be able to maintain participation and acceptance of democratic values and to strengthen them.

The German model of social security also reflects these principles. From the late 1990s onwards, it underwent some transformations, due to the increase in the number of unemployed people and the high rates of long-term unemployment, especially since German reunification, were perceived as a crucial social challenge. In a way, it was a change resulting from the merger of two economies with totally different economic, social and political development models and with very unbalanced indicators, which have been converging, as mentioned above. However, most measures to combat this challenge have been focused. Social exclusion was not perceived as a social problem, but mainly as an issue of unemployment along with lack of income. Social policies tend to increasingly limit socially and financially disadvantaged people from medical care in Germany. Many of them are unable to pay the costs of medical treatment out of their own resources. The fact that access to healthcare is not guaranteed for everyone in the country is contrary to international conventions that Germany has signed. As a State, party to the International Covenant on Economic, Social and Cultural Rights (United Nations Social Pact), in 1976 the Federal Republic accepted “(...) the right of all persons to enjoy the best state of physical and mental as possible”. Germany has committed itself to (paragraph d) with “the creation of proper conditions to guarantee to all people medical services and medical assistance in case of illness”. According to the Bundesministerium (2019, 108), health insurance (literally in Germany sickness insurance - Krankenversicherung) is a health-related pension to cover the individual and his family in the event of illness. Typically, this type of policy covers and pays for necessary medical treatment. Health or illness arising from problems at work is not covered by this type of insurance policy, as it is covered by another type of policy, namely compulsory accident insurance. In the 1990s, specifically in 1995, there was health insurance. This type of policy made coverage dependent on the profession and even on whom one worked for. About a year later, in January 1996, anyone in a local, company or substitute health insurance fund was free to choose between different health insurance funds. It should be noted that funds from companies and corporations can only be chosen if, in the meantime, they have changed their statutes, to be able to welcome external people (Bundesministerium, 2019). In the same vein, as of 1 April 2007, it was also possible to choose the Deutsche Rentenversicherung Knappschaft-Bahn-See, the insurance fund for mining, railways and maritime reforms, with agricultural health insurance (Bundesministerium, 2019). It can be argued that Germany took a while to assume the importance of the fight against poverty and social exclusion, however, from the moment it took over, it took several measures to combat the problem. For example, in the western part of Germany, reunified in 1990, there are around four million beneficiaries of social assistance. 120,000 people are homeless, 200,000 people, many of them from Eastern Europe, live in shelters. As of 1993, a law was passed that provided for social benefits for people who applied for asylum. These people would be up to 47% below the standard rate level for German citizens. In 2012, the Federal Constitutional Court considered this normative framework unconstitutional for violating the minimum for a dignified existence. In 1995, long-term care insurance became mandatory. Compulsory long-term care insurance is the fifth pillar of social insurance, along with health, accident, pension, and unemployment insurance. The aim of the Europe 2020 strategy is to reduce the number of people suffering from poverty and social exclusion by 20 million and the German government has chosen to ignore relative and absolute poverty and focus only on increasing participation in the labour market. The objective of reducing the number of long-term unemployed by 20% by 2020 was achieved early on due to the good performance of the economy. The European Union does not have much room for manoeuvre in the policy to combat poverty, with the competences of the member states being central. In 2000, with the "Lisbon Strategy", they committed themselves to fighting national strategies to combat poverty and social exclusion. They also introduced the at-risk-of-poverty indicator, a European Union standard for measuring relative income poverty. However, the objective of reducing poverty by increasing the employment rate did not reach the European Union. The successor strategy to “Europe 2020” also includes indicators of material poverty and low labour force participation. Based on 2008 data and considering the three factors, a total of 116 million people lived in precarious living conditions. Germany thus contributes insufficiently to the reduction of poverty in Europe. Unemployment is a major cause of poverty but reducing long-term unemployment does not inevitably mean reducing poverty. For the material situation and other causes are left out of consideration. The Poverty Conference participated from the beginning in the Europe 2020 strategy process. Germany's participation in the strategy may only be pro forma, without sufficient public debate. Although the European Union Commission also criticizes the growing poverty in Germany, “Europe 2020” no longer seems to play such an important role. The mid-term review was announced a long time ago but has been put aside until now. In the European Union, member states continue to be crucial when it comes to poverty policy. European initiatives have given positive impulses through projects and meetings with people with experiences of poverty, however, these can only be effective if member states put them into practice (NAK, 2016). In summary, according to Pordata data, in Germany, for the year 2020, the at-risk-of-poverty rate after social transfers is 18.5%; the population at risk of poverty or social exclusion: total and by sex is 19.7 million; severe material deprivation rate: total and by sex not available; the population living in households with very low work intensity: total and by sex corresponds to 9.5%; the at-risk-of-poverty rate of the employed population is 10.6%; the overhead rate of housing expenses: total and by type of housing occupancy is 19.9% (2020).

5. CONCLUSION

As a result of the analysis between Portugal and Germany, firstly, regarding the cultural background, there are significant differences. In fact, in Germany, merit comes from performance and poverty ends up being seen by many as an individual condition and not a society problem. In fact, a few decades ago, the German population did not even believe that poverty existed in their country, so they did not recognize it as a reality in the country. This way of thinking of the Germans has advantages, but logically it also has some drawback consequences for the country, which became visible at the level of critical areas, such as health and healthcare. In fact, not all German residents are covered for healthcare. In Portugal, regarding the right to health protection, it is constitutionally protected by article 64 of the Constitution of the Portuguese Republic and guaranteed by the National Health Service (Serviço Nacional de Saúde), where principle of universality applies. Basic security (Grundsicherung) is also a concern in Germany, as this should be an undebatable right of the German population. However, beneficiaries are under pressure from the State, to justify all expenditures to dissuade the use of this right and not overload the public accounts. As for the common risk groups, both Portugal and Germany face severe challenges with the children, the elderly, the unemployed, the working poor, refugees and the homeless. In Germany, there is still a lot of concern for women, health, basic security (Grundsicherung), and some stigmatized areas. In Portugal, health is also increasingly c challenge, as the national system is increasingly under pressure. On a positive view, care is given to young people, the Romani population, and immigrants. In summary, despite poverty is different between Portugal and Germany, contrary to what one might suppose, it is true that Germany also faces adversities, which means that it is not a specific problem for Portugal, or possibly for the poorer nations, rather a concern across Europe, including for its strongest economy, Germany, as the comparative data showed before allow to conclude. It can be also be suggested that the economic and social models may be decisive in the reproduction of poverty, given that East Germany, for years subject to a regime very different from the one experienced in West Germany, contributed decisively to the increase in poverty levels. An issue that Germany has been facing since the 1990s, and which has been worsened more recently with waves of immigration from very poor countries.

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SOCIAL MEDIA AS A COMMUNICATION TREND OF BLOGGERS IN THE WORLD OF FASHION

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ABSTRACT

The development and popularity of social media have not only changed the way we communicate - they have also altered consumer behaviour and consumers' choices pertaining to fashion products. Blogs became the new media used to spread information, gather like-minded individuals, and create new outlooks on the world of fashion. Social media, as a part of the internet world, have changed the way the majority of people communicate, and have also induced significant changes in marketing and the ways companies, i.e., designers try to establish contact with their buyers. This paper attempts to answer the following question: are bloggers and social media influencing the consumers' fashion choices and how much? It is a well-known fact that modern day consumers are growing more demanding by the day. In an effort to reduce time necessary to make a decision and finalize the purchase, they are requesting new information on a daily basis, because after all, time is money.

Keywords: *Blog, bloggers, social media, Internet, ethics*

1. INTRODUCTION

Since the dawn of times, people have tried to figure out the secret to fashion – it is the most intriguing phenomenon of the modern age. It is difficult to explain and define fashion, as it constantly changes, has different characteristics, and refers to everything that is modern and necessary at a certain moment in time. 'Various approaches, such as sociological, psycho-analytical, aesthetic, symbolic, structural, semiotic, paralinguistic, and the IT approach have managed to uncover certain features to fashionable clothing, but these features soon turned out to be nothing more than masks hiding the real, mysterious face of fashion' (Galović 2021). Fashion is a vehicle of identification and differentiation from other people; it serves as communication, symbolism, meaning and art. Thanks to the internet and social media, the connections between fashion, designers, and shopping have been diminished. Blogs provide consumers with valuable information that facilitate making decisions about purchasing certain items; moreover, they help users find items that suit them, which greatly reduces financial expenses and prevents wasting time on window-shopping and decision making. Fashion bloggers are merging their passion for fashion with consumerism, with the ultimate goal of achieving a certain status in modern society.

Bloggers have created a new fashion hierarchy whereby they enjoy the privilege of sitting alongside the world-renowned fashion media. They have an excellent advantage over printed magazines, as they offer a shorter information flow between the manufacturer and the consumer. Furthermore, bloggers can update their contents during events, which makes them more powerful in the eyes of fashion brands. This is just one of many facts that make the internet the most powerful force in the world.

2. SUBJECT AND OBJECTIVES OF THE PAPER

The subject and objective of this paper is to determine the influence of bloggers on the final consumer in the world of fashion. Nowadays, blogs and social media are the most popular place to post and advertise various contents, as they make for a large percentage of followed content on the internet. The topic of this paper is explained via accessible literature pertaining to the fashion and blogger scene as a whole, detailing the subject-matter from the very beginnings of fashion to modernization of clothing items and creation of blogs. The paper will be completed via a survey of the same name in an attempt to make people think about this topic and thus collect relevant data that can provide useful research results.The first step in making this paper was the collection of secondary data in order to provide a systematic review of the current relevant scientific and professional literature. For the purposes of this paper, empirical research has been conducted via a survey. The objective of this research was to obtain knowledge about consumer behaviour and factors consumers base their purchasing decisions upon. To conduct the research, respondents first needed to fill out the provided questionnaire. The questionnaire was filled out by 228 respondents – 65,8% of respondents were female, whereas the remaining 34,2% were male.The expected contribution of this paper is manifested via better understanding of consumer behaviour related to fashion item shopping, determination of main characteristics to such shopping behaviour, and the influence of social media and bloggers on the purchasing decisions.

3. MEDIA IN THE FUNCTION OF ADVERTISEMENT

‘Advertisement is an impersonal, paid form of communication aimed at a broad audience with the objective of providing information, creating a positive predisposition, and encouraging people to shop’ (Kesić 2003). One cannot picture the modern world without advertisement via digital and social media. New media are quickly turning into multimedia, managing several different communication channels, which opens a completely new world of virtual communication to the people who have something to say and wish to share it with the public (Ileš, Urbanek 2021). Media have become an integral part of every person’s life. Media can be described as a type of information that can be used for informational, educational or entertainment purposes. Research of advertisement has shown that social media perform with great efficiency when it comes to product and service promotion (Stipetić, Benazić, Ružić 2021). The more open the society and its information sources, the more open the media become (Malović 2007). This new digital age is characterized by an increased information flow and efforts toward a technological extension of consciousness that would provide the mankind with the knowledge of the unknown. A relationship that exists sans the agency of media and modern technology can barely be found nowadays, in private and business alike. Media have actually always existed – they just weren’t given so much media attention. They took on various forms, such as pictures, magazines, newspapers, books, television, cultural events, newsletters, and even the modern-day technological innovations that are altering and completing the monotonous world with every passing day. According to the book ‘The Digital McLuhan,’ the term media, when viewed as messages, can be applied to everything technical – media can be a voice, clothes, photographs, weapons, money, goods, or things of other nature (Levinskon 2001).

The new media have slowly but surely taken over the role of communication and discussion spaces, as they allow for a more direct interaction with the audience, which can ultimately have potential for concrete action (Ileš, Urbanek 2021). The media have permeated all segments of human life, increased communication and information flow between sender and receiver, and enabled greater access to information.

3.1. Digital Media

When it comes to digital media, people often ask questions such as: do digital media make you stupid, do they make you smart, do they provide clarity - followed by a string of other questions and theories that cannot be answered. Man is often viewed as a victim of the digital age and media manipulation. However, digital media can also have useful effects, as they connect people and enable individuals to create their identity via writing blogs or using social media such as Facebook, Instagram, Pinterest, Twitter, Snapchat, and others. Digital media are created by the agency of information-communication technologies and computer-mediated communication. However, technology is quickly advancing and the interaction between digital media and other technological innovations such as mobile phones, tablets, smart watches, and other gadgets has become the new norm. According to Katarina Peović Vuković, digital media are technologically precise because they define the basic difference between the new and the old media (Peović Vuković 2012). In the previous years, newspapers and magazines were synonymous with the word media, whereas today, a life without the internet (i.e., the pillar of the modern world) is unimaginable. Digital media are improving and becoming more precise with every passing day; moreover, they have full system support which enables bloggers (and other users) to use them whenever and wherever they want. They can travel the world and write about their experiences, with their blogs being available to thousands of users in real time. Fashion bloggers often visit Fashion Weeks, where they learn what is fashionable, what is new in the world of fashion, and what is in or out first-hand. This kind of interaction enables bloggers to live their dreams and share their experiences with their followers.

3.2. Social Media as a Communication Trend

Social media make for an inevitable communication channel and an omnipresent part of everyday life in society. They are ideal for creating relationships with existing clients and buyersor sharing opinions, attitudes, and preferences. Social media are considered to be the second most important advertising platform to websites. They are a type of internet service, mostly in the form of application, and are used to connect their users. Today, the social media platform with most users is Facebook, followed by Instagram, YouTube, LinkedIn, and others. Social media have gained their popularity mostly due to their simplicity and nigh cost-free usage at any time. Their services are being constantly upgraded, offering new options to their users. Social media are developing every day, thus evolving into new forms. They are becoming better, more saturated, and are offering a plethora of information people can read and comment on every day. In modern times, characterized first and foremost by globalization and quick communications, this type of virtual tool equals significant savings in the time-money department - in real time (Šošić 2021). The world is no longer subject to forgetfulness, as everything is available on-line. The world of ideas and possibilities lies at the tip of one’s fingers. According to the book ‘The New Digital Age,’ communication technologies provide an opportunity for not only technological, but also cultural progress. The world of internet that surrounds us will continue to affect and direct the way we communicate with others, as well as the way we see ourselves (Schmidt, Cohen 2014). According to the book E-marketing (Ružić, Biloš, Turkalj 2014) a social media platform refers to a group of users with common interests gathered around a certain internet service, characterized by active participation and creation of virtual communities that make for invisible networks of on-line friends.

Social media have caused great progress in the modern world. Their further growth and development is expected. Social media have greatly contributed to all contents, including fashion. The basic idea is to build brand consciousness and loyalty (i.e., loyalty to the business), via an internet service users like to visit and socialize at.

3.3. The Blog and Blog Usage

How is a blog created? According to the book 'The Great Wave,' a blog is actually a personal diary that consists of posts (Li, Bernhoff 2010) made by users who wish to write blogs. Blogs aren't subject to special rules, which means creators can post pictures, texts, videos, articles, and other useful publications that are then broadcast to private and public users in order to present their work and activities. There are several tips for people who wish to run a blog (Li, Bernhoff 2010). Picking a topic in order to gain the target audience's attention is the most important part – in this case, the topic is fashion.The first rule is to listen, which means the blogger must listen to the users' interests. Moreover, the blogger has to follow blogs with the same or similar topics; ran by both colleagues and competitors. The second rule is to determine the objective of the blog (the heart of the topic the blogger is writing about) – is the blog about new or existing products, are comments and answers allowed or is the blog used solely to provide information? The third rule refers to assessment of return on investment, i.e., it talks about determining the price of the blog and whether it will receive the readers' support and generate returns on the investment. After that, one must create a plan that details who's going to write the blog – will it be one person or several people, due to the necessity for constant updates in the unpredictable world of social media? The fifth rule is practice – it is necessary to write a few practice sentences before posting. It is also important to re-read every post to make sure it's something we want people to see on our blog. The sixth rule refers to creating an editing process, which means finding a person who will check and proofread the blog. When it comes to bloggers who write their own blogs about items they buy and destinations they visit, they mostly proofread the contents themselves, whereas large publishing houses such as Fashion.hr or Mango employ their own proof-readers in order to always provide an impeccably written text. The seventh rule comes down to designing the appearance of the blog and connecting it to the users' internet page. This rule is important because the first impression is also one of the most important ones. It is necessary to create the design, colours, pictures, videos, pop-up windows and other elements and variables in a way that makes the blog readable. The users must be able to find their way and understand how the blog works quickly and easily. The eighth rule talks about creation of a marketing plan so that people can find the blog. People must be able to find the blog, read it, maybe leave a comment, or learn something, as that is the very purpose of the blog. There are various possibilities as to how to publish a blog, for example, one can buy a key word in internet search machines, rent a pop-up internet add or opt for a classical add on other platforms, in newspapers or on often visited websites. The easiest way to advertise a blog is via social media, which is almost free and accessible to everyone. The ninth rule talks about the fact that managing a blog doesn't consist solely of writing, which is why bloggers must follow their blog's environment and react to it accordingly. Bloggers must be aware of the fact that people can leave comments on their blogs, and these comments aren't always going to be nice – however, they can potentially change the general outlook on the blog and encourage change. The last but not least is sincerity – people expect honest, relatable opinions and first-hand information from the bloggers. Consumers are aware of the fact that marketing websites sometimes use well designed commercials to trick people and intentionally persuade them to make a purchase. This is precisely why it is instrumental to make an effort and create a functional, fair, and useful blog that promotes a sense of community and presence.

3.4. Specific Blogging Tools

Blog is a small, regularly updated internet page ran by an individual and visited by a large number of visitors (Vilović, Širinić 2008). Many bloggers follow the media and other blogs, whereby they filter the stories in accordance with their interests. Some bloggers carefully follow all news pertaining to their topic of interest. One can't help but ask the following question – are all these people and data credible, given that there are over half a million different blogs only in Croatia? According to Keen and his book 'The Cult of the Amateur,' owning a computer and having an internet connection doesn't transform one into a serious journalist any more than having access to a kitchen makes one into a serious cook. This sentence is very strictly saying that people don't always have to take bloggers or other internet content creators seriously, as nowadays anyone in the world can post anything online. Before the rise of blogging tools, so-called bloggers used to post their articles on social media. Likewise, the majority of people still learn about blogs via social media. Bloggers usually motivate their followers to continue following them by writing interesting stories, posting their experiences, and publishing interesting contents (in this case, fashion contents) every day. The blogs are often connected to the fashion industries that decided to lean toward them in an effort to follow their clients, fix their relationship with the public, and remedy possible shortcomings. The connection with social media and bloggers is very important because it takes a lot of money to attract new audiences. Blogs get large quantities of various audiences fashion brands can unite. This is why the specificity of blogs is so important – knowing how to capitalize on the possibilities bloggers offer has become a must for the brands of today (Martinčević, Hunjet, Vuković 2020). Fashion bloggers are a popular source of marketing to fashion brands; however, they also pose a risk given that the selection of blogs one can choose from grows with every passing day. Social attractiveness, physical attractiveness, and the propensity to making friends with like-minded individuals have a positive effect on the para-social interaction, which, in turn, positively influences the value perception of a luxury brand, the brand image, and, ultimately, the intention to purchase a product by said brand (Stipetić, Benazić, Ružić 2021). Maintaining a balance between an independent opinion and a brand review can often be taxing, however, bloggers have proven they can be professional and provide exclusive content for every fashion brand. Bloggers should primarily provide high-quality, readable articles to their readers; however, they should also maintain a casual tone because with the fast-paced lifestyle of today, simplicity makes for one of the most treasured characteristics in life.

3.5. The Popularity of Fashion Bloggers

When discussing fashion, social popularity and reactions are indispensable, so the growing number of blogs that post fashion content and have a significant effect on fashion comes as no surprise. The rise of fashion blogs has helped discover a new world of fashion industry, as blogs represent a significant influence both online and in real life. The popularity of fashion bloggers is viewed as very common and normal today, given that they often collaborate with fashion companies, become well-known faces of fashion magazines, and attend fashion events or other showbiz events. It is possible to say that blogs have become a genre created through agency of other genres, i.e., magazines, television, and newspapers. They represent all these contents unified in one website, whereby new articles formed by pure amateurism turn into forms for further development, butsimultaneously also gain recognition as affirmed fashion media. Fashion blogs have cast the common consumer in the role of a fashion content producer, and yet on the other hand, they have strengthened the existing hierarchical and communication structures of the fashion system.

Ida Engholm and Erik Hansen-Hansen, authors of the article ‘Fashion Blog as a Genre,’write about the following four types of fashion blogs (Engholm, Hasen-Hasen 2013):

- Professional fashion blogs produced by fashion magazines. Contents of these blogs are edited solely by fashion journalists. Unlike private blogs, professional fashion blogs include minimal interaction with their readers.
- Fashion industry blogs produced by professionals from the fashion industry, mostly stylists, journalists, models, or photographers who have access to professional fashion events. Amateurs who have gained access to fashion events after being ‘discovered’ by the fashion industry also belong in this group.
- ‘Street Style’ Blogs characterized by photographic documentation, with the objective of displaying the street style of real people living in major world metropolises. Photographs include both people who aren’t aware their picture is being taken and people posing for the camera. Unlike professional photographs, the focus isn’t placed on the clothing, but on the person wearing it.
- The fourth and last type of fashion blogs is called ‘Narcissus’ This type of blog places the producer of the blog in its centre. It is the most common type of blog, and it displays photographs from the blogger’s private life, with focus on their own personal style and fashion interests. The blog offers a possibility of direct dialogue and exchange with readers via personal photographs. The visual quality of this kind of blog cannot be compared to the quality of fashion magazines. On the other hand, it provides original visual authenticity.

Blogs have a significant effect on readers and have therefore gained a lot of popularity. Bloggers offer their own opinions on fashion and other fashionable things, thus inciting the readers to leave comments, enter discussions, state their own opinions, and often shop. The popularity of bloggers arises from the fact that they display the clothes on real people and write about their own experiences, which is why people believe them over photoshopped pictures in magazines. Blogs prove that it is possible to have high-quality clothing for less money and thus create a unique personal style. Nowadays, everything is allowed – this catchphrase is often aimed at women and girls who are striving for unattainable perfection under the influence of artificial beauty. The blogging platform has helped expand the fashion world and transfer it into every home. The popularity of blogs is growing with every passing day, and it will continue to grow with the advance of technology in this technological advancement-based world.

4. BLOGGER ETHICS

"Ethics is a philosophical discipline that explores moral aspirations and goals, as well as sources and foundations of morals. Compared to morals, ethics is a broader term, as it represents the philosophical and theoretical understanding of morals. Morals, on the other hand, are a concrete form of human freedom determined by rules of behaviour between people. Morals can be defined as totality of valid moral norms, judgements, and institutions, i.e., a set of written and unwritten rules on human behaviour based on ethical norms" (http://etika-m.blogspot.hr/ 2012/05/sto-je-to-zapravo-etika-ima-raznih.html). When it comes to business ethics, it encompasses the businesspeople conduct for others with the objective of obtaining benefits for others, as well as direct and indirect benefits for themselves, in a way that is in accordance with the rules (Bebek, Kolumbić 2000). Bloggers often act as an interest group. It is common to leave comments, mostly personal praises by like-minded individuals. Individual blogs often represent gossip columns that report on events, gossip, and personal opinions. Blogs don’t have editors, as they are run by laymen who independently report on topics they (and their small following) find interesting. This is why they are often considered unprofessional. Due to their constant updates, they are often not far behind the mass media when it comes to serious projects.

The yellow pages often report on half-information from various blogs, which shows how influential this informative digital system can be. Even other electronic media, such as TV news, sometimes report on news that were first published by bloggers, which leads to an increase of the bloggers' influence and its expansion to classic media channels. However, one mustn't forget that the internet and the digital technologies still aren't available to everyone. This is why some print media have started reporting on the most interesting blog contents in order to make it accessible to a broader audience. However, there are rules to communication via blogs. Blogs often make the rules of communication that were not mastered by the poster very obvious – they can even give an insight into the personality of the individual who runs the blog or leaves comments. Some people view the internet and blogs as a unique opportunity to state their opinions and viewpoints under the guise of anonymity. The top 5 examples of negative comments left on a blog (http://blog.dnevnik.hr/print/id/1623038800/blogerska-etika-i-duh-egoizma.html):

- Expressing a different opinion via insults and swear words
- Egotism that sprouts inflated and excessive self-actualization (I am the best, the prettiest, the most important, etc.)
- 'Brave' visitors who don't have the courage to stand by their words after they've stated their differing opinions
- Subterfuge and provocation
- Not being familiar with the basic rules of internet communication.

Furthermore, when talking about blogs, fashion, and ethics, one is automatically also talking about creating outfits, i.e., displaying the clothes so that followers can see them and comment on them. People who follow fashion blogs want to get first-hand information about products they are interested in. Clothes do not make the person, but they complete them. Everyone has the right to their own choices that do not have to be in accordance with the standards and choices of others. Blogs also have a visual communication component, as they are used to send information. Half of the total impression is dependent on said visual component. However, ethics do not only apply to bloggers, but also to their followers, who are often the ones leaving tasteless comments that have nothing to do with morals and mutual respect. It is very important to at least be familiar with the basic etiquette and stick to it as much as possible in order to avoid making unwanted impressions or even getting banned from commenting or visiting a certain blog or other social media.

5. RESEARCH RESULTS

The empirical part of the paper is based on conducting primary research using a survey as the most commonly used method of collecting data and information in social research (Benšić, Šuvak 2013). Research results have been obtained via an online survey used to question blog users from Croatia. The survey has been created using a Google tool called 'Google Forms.' It has been filled out by 228 respondents. The objective of this research was to determine whether bloggers and social media have an effect on fashion and clothing choices, whether social media have a relevant effect on consumer choices when it comes to choosing fashion products, and whether the existing beliefs about the influence of social media match and to what degree.
Determination of objectives has been conducted using the following hypotheses:

- H1 - Bloggers and social media have an extremely significant effect on fashion and clothing choices.
- H2 - Social media help consumers distinguish between good and bad quality.
- H3 - Consumers believe bloggers and social media over themselves.

5.1. Research Methodology

Research has been conducted via an online survey. The survey has been filled out by consumers from different age groups and of different genders, vocations, professions, and personal interests. The survey was comprised of 35 questions of different types. The initial questions are designed to collect data about the basic information on respondents, such as gender, age, status, educational background, whereas the following questions offer several possible answers and use a Likert scale. Further information about the questions will be displayed via charts.

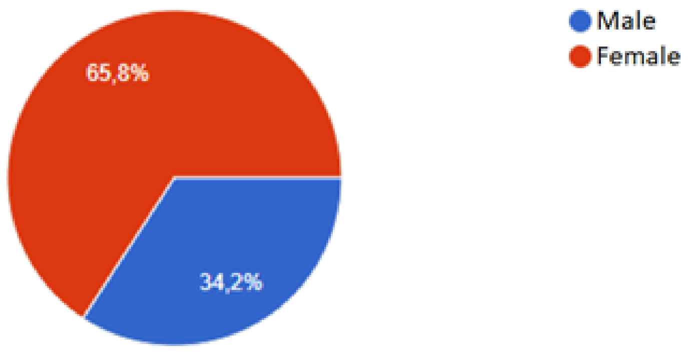

Figure 1: Gender structure of the respondents
(Source: autors)

The sample was comprised of 228 research participants. The gender structure of the respondents was as follows: 65,8% of respondents were female and 34,2% of respondents were male. Figure 1 shows the gender structure. If we observe the structure of respondents by age group, we will learn that the sample was comprised of persons between the ages of 18 and 50 and over. According to the results, the majority of respondents (58,8%) were between 18 and 25 years old. Furthermore, 40% of respondents were between 26 and 50 years old, whereas 1,2% of respondents belonged in the 'over 50' age group. Figure 2 shows the age structure.

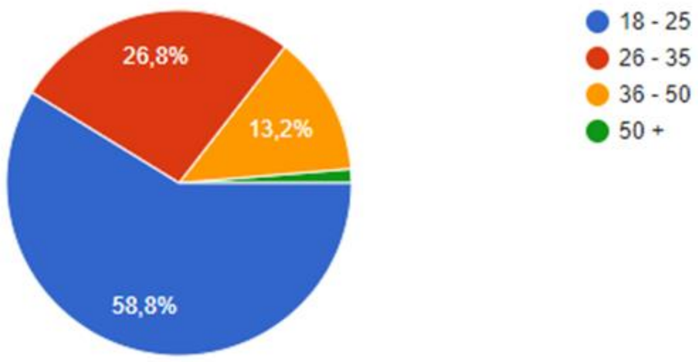

Figure 2: Age structure of the respondents
(Source: autors)

The survey also collected information about the educational background of the respondents. The majority of respondents (51,3%) held undergraduate academic degrees, whereas 18,9% of respondents held graduate academic degrees. The remaining 29,8% were high school graduates. Figure 3 displays the educational structure.

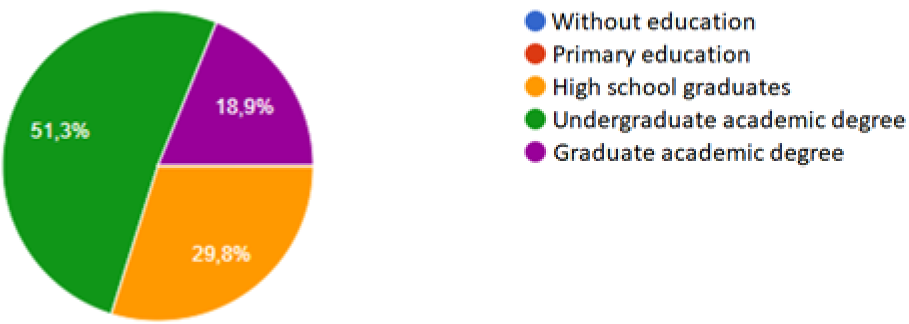

Figure 3: Educational structure of the respondents
(Source: autors)

When answering the question 'Do you shop online?' the majority of respondents (87,7%) answered with a 'yes,' whereas 12,3% responded with a 'no.' It is possible to conclude that online shopping is becoming very popular, and a growing number of respondents prefer to shop via the internet. Figure 4 displays the online shopping tendencies.

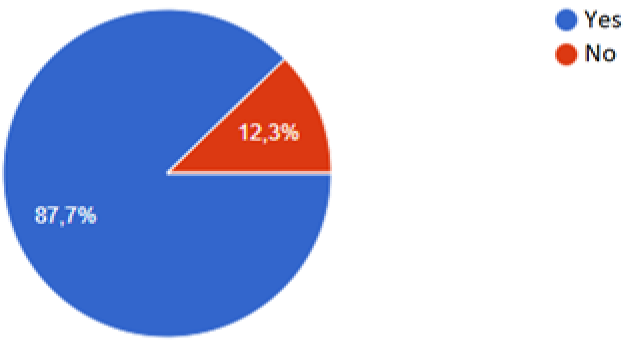

Figure 4: Online shopping
(Source: autors)

Considering the large percentage of online shoppers, the next question was asking the respondents to evaluate online shopping, whereby 1 represented the lowest grade and 5 represented the best grade. The majority of respondents (31,6%) graded online shopping with a 3. 28,9% of respondents graded it with a 4, whereas 20,6% graded online shopping with a 5. 9,6% of persons graded online shopping with a 2, and the remaining 9,2% graded it with a 1. It can be concluded that the respondents are generally satisfied with online shopping. Evaluation of online shopping is displayed via figure 5.

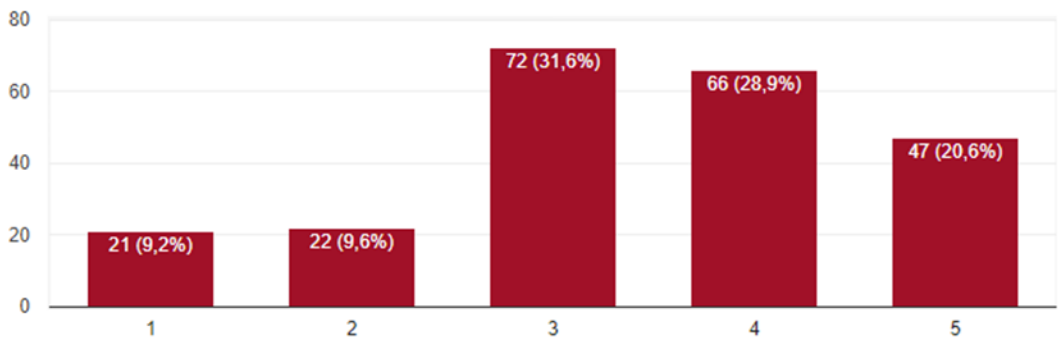

Figure 5: Evaluation of online shopping
(Source: autors)

The next question was about bestselling online products. According to the data, the majority of respondents (28%) bought clothing items online. Second to clothing items were cosmetics (23,4%), whereas footwear took the third place with 22,6%. Tech products came in fourth place with 18,8%, followed by books (10,3%), food products (6,9%), and other unspecified items (4,2%). Nearly 7% of respondents state they never shop online. Figure 6 shows the bestselling online products.

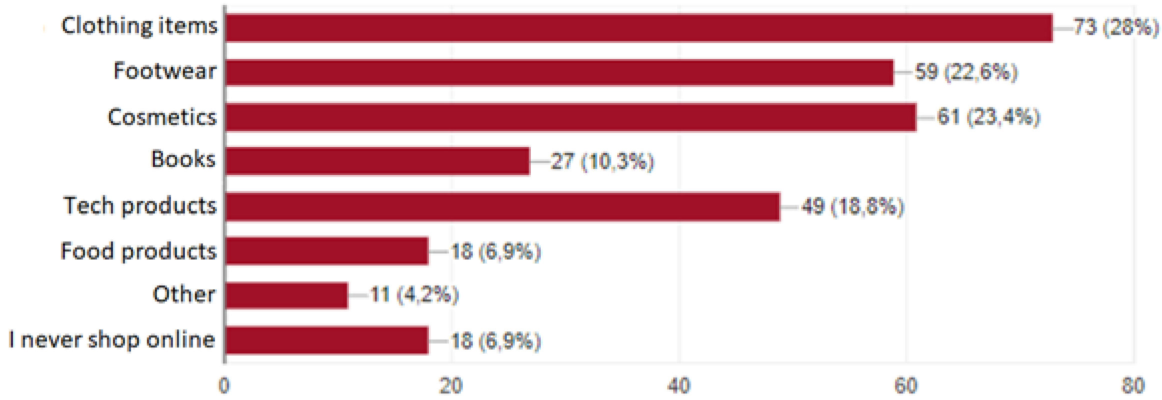

Figure 6: Bestselling online products
(Source: autors)

The following answers were given to the question about the most important factors of online shopping: the majority of respondents (30,75%) marked the price as the most important factor, followed by 29,9% of respondents who said order security was the most important part. 16,1% of respondents believed cash back guarantee was the most important factor, whereas 14,9% chose correct information. 11,9% of respondents found various payment options most important, 11,5% chose quick delivery, 10,3% settled on good quality, and 3,4% picked size availability. The most important factors of online shopping are displayed via figure 7.

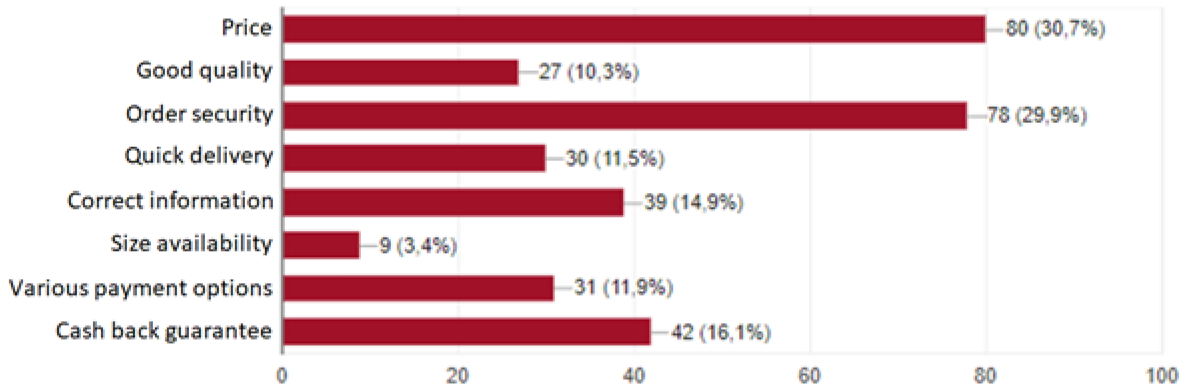

Figure 7: The most important factors of online shopping
(Source: autors)

When asked whether they read product reviews, the majority of respondents (83,3%) answered with a 'yes,' whereas 16,2% of respondents said 'no.' This confirms the fact that respondents like to inform themselves before purchasing products. Figure 8 shows information about reading reviews prior to purchasing a product.

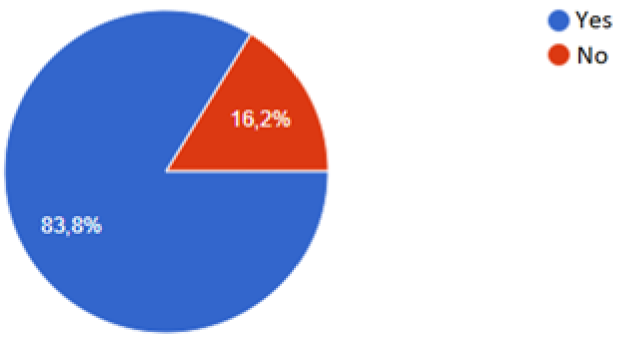

Figure 8: Information about reading reviews prior to purchasing a product.
(Source: autors)

The majority of respondents (42,1%) mostly agreed with the claim that consumers form opinions and evaluate products based on other consumers' reviews, 28,5% of respondents agreed with it, whereas only 6,1% strongly agreed. 11,4% of respondents disagreed with said claim, and 11,8% couldn't settle on an answer. Figure 9 shows information pertaining to forming opinions and evaluating products based on reviews of other consumers.

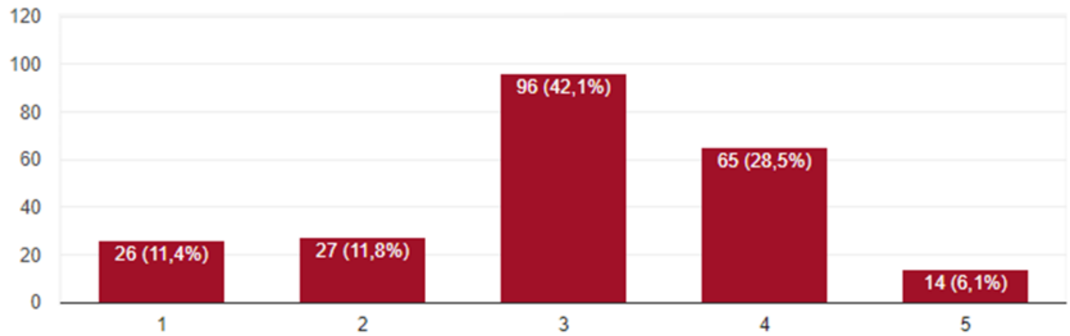

Figure 9: Forming opinions and evaluating products based on consumer reviews
(Source: autors)

The next question asked the respondents whether they follow blogs. According to the answers, 59,6% of respondents did follow blogs, whereas 40,4% didn't. It is possible to conclude that more than half of the respondents regularly followed blog contents, which further proves their popularity. Figure 10 provides information pertaining to following blogs and blog contents.

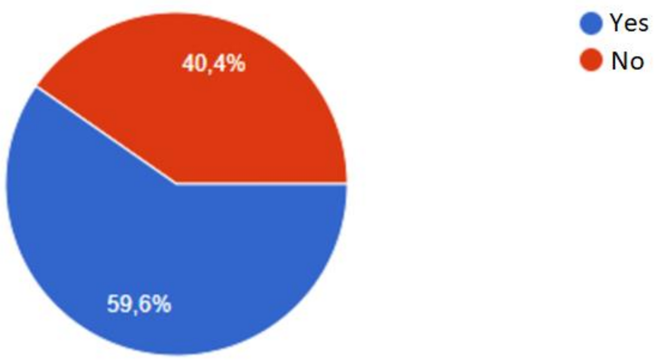

Figure 10: Blogs and blog content following
(Source: autors)

The majority of respondents (51,3%) answered the question ‘how many times did blogs or social media influence your decision to make a purchase?’ with ‘almost always,’ 36,4% answered with ‘rarely,’ whereas 12,3% of respondents claimed social media never influenced their shopping decisions. Figure 11 shows the influence of bloggers and social media on the decision to make a purchase.

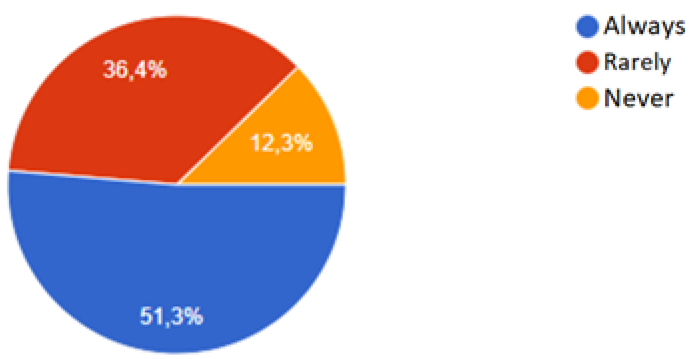

Figure 11: Influence of bloggers and social media on the decision to make a purchase
(Source: autors)

Bloggers buy and use products they describe’ - 29,8% of respondents said this fact could influence them and they would consider buying the products for themselves. 20,6% of respondents said they would be more likely to buy such products, 16,7% would remain indifferent, 21,1% said this wouldn’t affect them, whereas 11,8% of respondents said they still wouldn’t buy the products. Figure 12 shows information pertaining to the knowledge that bloggers buy and use products they describe.

Figure 12: Knowledge that bloggers buy and use products they describe
(Source: autors)

The question ‘Do you believe that an interesting and clear blog contributes to fashion product popularity’ was answered using the Likert scale, whereby 1 was synonymous with ‘I disagree’ and 5 was synonymous with ‘I agree completely.’ The majority of respondents (40,4%) agreed with this claim, 25,9% of respondents answered with ‘almost always,’ and 8,3% agreed completely. 14,9% of respondents were indifferent, whereas 10,5% disagreed. An interesting and clear blog contributes to fashion product popularity, as shown via figure 13.

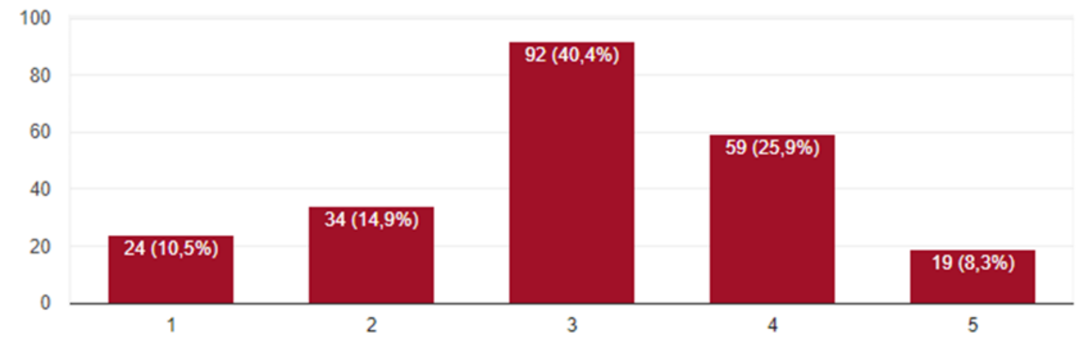

Figure 13: An interesting and clear blog contributes to fashion product popularity
(Source: autors)

The final question urged the respondents to state their opinions. The respondents were asked whether they believed that products promoted via blogs and social media sell better than products sold only via websites. 81,6% of respondents answered with 'yes,' whereas 18,4% said 'no.' It is possible to conclude that online contents have a greater effect on sales and purchases than classic media. Product popularity is shown via figure 14.

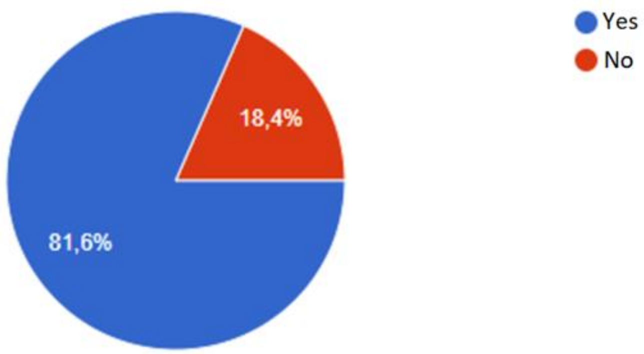

Figure 14: Product popularity
(Source: autors)

5.2. Discussion and Research Conclusion

At the end of this research, it is possible to conclude that bloggers and social media have an effect on consumer behaviour and product choices. According to the hypotheses set at the beginning of this research, it is possible to conclude that H1 (bloggers and social media have an extremely significant effect on fashion and clothing choices) wasn't fully accepted, as there are still people who aren't familiar with blogs and social media or don't follow such sites very often. On the other hand, H2 has been confirmed – it is possible to conclude that social media help consumers distinguish between good and bad quality products, as reviews provide a larger and clearer picture of the products buyers are interested in, thus making it easier to make purchasing decisions. H3 confirms the claim that consumers sometimes believe bloggers and social media over themselves, as the majority of respondents answered questions such as 'Would you rather buy products that have been praised by bloggers?' with a 'yes.'Accordingly, we can conclude that consumers carefully choose and read all news in order to spend their money wisely and satisfy their fashion trend needs. Social media and bloggers are in full swing today, making it clear that they will continue to expand, grow, improve, become more accessible and take up a large portion of the internet.

Every social media platform provides different contents for its followers, thus connecting its users. Nowadays, outer appearances make for a very important segment of the society. There is a pronounced need for individualization as every person craves importance and respect. The role of consumers has gained importance and now actively contributes to creation of market brands. The connection between consumers and the media is at a truly enviable level – it has become socially relevant both in contemporary media and in the minds of modern consumers.

5.3. Research Limitations

Research limitations have manifested themselves via the respondents' honesty or dishonesty and their ability to correctly answer the provided questions. The research has been conducted on a relatively small sample comprised of 228 respondents, making it slightly difficult to make conclusions about the entire population of social media users. The survey has mostly been completed by female respondents, which is another reason for response relevancy. However, the fact that men follow fewer blogs and trends than women is understandable (apart from blogs on technology and gadgets). According to the research results, the respondents had different opinions, thus proving that every individual contributes to content variety and an increased engagement of bloggers and digital media.

6. CONCLUSION

The media are an integral part of human life, and their influence is unavoidable. As social media developed, individuals created personal pages in order to publicly state their opinions on various interesting topics. Over time, people became interested in those pages, which is how the blog – the most important segment of this paper – was created. Blogs influence people and provide ideas that are helpful to consumer choices. For bloggers and social media to make sense, there first must be consumers who will behave in a way that creates interest in shopping and satisfaction of their needs. Consumer behaviour is susceptible to changes, as it is under the influence of various environmental factors. In both real and virtual world, consumers tend to exchange their opinions on product value, which facilitates making decisions regarding product purchase. It can be concluded that individuality is one of the most important segments of consumer behaviour – every individual has their own opinions and beliefs that act as guidelines when creating consumer relationships. The life of modern consumers has great significance to the product concept because the market creates new identities and initiates new thoughts and demand factors every single day. The market strives to satisfy the consumers' needs via its innovations and its unlimited character. Blogs and social media occupy the consumers' thoughts with increasing frequency. Social media and blog users prefer to shop online, like to read product reviews, and tend to inform themselves about interesting products via blogs and social media. Bloggers' opinions are widely accepted as consumers do their best to keep up with modern trends in order to remain consistent and be as useful as possible to the consumer society.

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STUDENTS' ATTITUDES ABOUT INFLUENCERS AND INFLUENCER MARKETING ON SOCIAL MEDIA

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ABSTRACT

The influence of the Internet and new media is nowadays increasingly prominent in the business world. Social media networks have become the most popular global communication phenomenon. Companies have recognized social media networks as useful tools in business since different marketing activities can take place on them. To implement a large part of marketing activities in the online environment, companies use influencer marketing. Through the relationship with their audience, influencers can shape their behaviour and opinion. By communicating through social networks, they can influence their followers' decision-making about buying certain products. This paper aimed to determine whether influencers on social networks are the leaders of marketing activities. The paper examines the students' perception of influencers and influencer marketing on social networks concerning gender, age, level of study and type of study, in a sample of 142 students from University North in Croatia during the period May to July 2022. The obtained results show that only the variable level of study influences the formation of attitudes about influencers and influencer marketing.

Keywords: *influencer, influencer marketing, social media, student attitude*

1. INTRODUCTION

The Internet is nowadays the most powerful medium that is slowly suppressing other types of media. Its historical development was conditioned by technological evolution, the development of management of complex global infrastructure, and social and commercial factors (Leiner et al., 2009). The influence of the Internet and new media can be seen when observing any area of human life. For example, a decade ago, it was unimaginable to conduct classes remotely, via the Internet, and the pandemic period has revealed that this is not only possible but also very convenient. With the emergence of new generations, especially generations that have been familiar with the Internet since birth (as Generation Z), activities via the Internet and social media networks are becoming stronger and more numerous. New media are influential in the business world because marketing activities take place through them (Perkov & Pavlović, 2018). Companies often hire influential people, influencers, who are in charge of product presentation. Their task is to present the products to other people (their followers) and strengthen the purchase decision (Kwiatek, Baltezarević & Papakonstantinidis, 2021). Influencers strongly influence public opinion and are the bearers of marketing activities. Through the relationship with their audience, influencers can shape their behaviour and opinion, they are considered to be opinion leaders, and through communication through social media networks, they can influence people who follow them so that they make a purchase decision (Szczurski, 2017).

With their posts on social networks, influencers lead trends, promote ideas, promote products and services, and all of this is very interesting to study since it is a new phenomenon. The main objective of this paper is to present the concept of influencer marketing and to empirically assess the students' attitudes about influencers and influencer marketing on social media. Namely, the authors have surveyed a sample of 142 students from the University North in Croatia, in the period May – July 2022. This is one of the first empirical studies that assess the impact of influencers and influencer marketing in Croatia and Europe for that matter. This paper is organized as follows: the second section revolves around social media as new media and tackles on and presents the most popular social media networks, and the third section focuses on marketing on social media. Section 4 presents the influencers as leaders of new trends and introduces the classification of influencers. Section 5 reveals the used methodology and sample, and the empirical results from the study have been laid out in Section 6. The last, Section 7 opens up a discussion and gives conclusions.

2. SOCIAL MEDIA AS THE NEW MEDIA

When social media development took off, social media networks were not overly popular, but it is nowadays impossible to imagine life without social networks. Although social media networks are used primarily as a tool for building connections between people, maintaining relationships and getting to know each other, they are also useful tools in business because different marketing activities can take place on them. Social media users connect their profiles with other people's profiles, connect with other users in that communication system, and build acquaintances and connections. (Lozić, 2019) But social media networks are not only used to build new connections with new people but also to maintain existing relationships (Boyd & Ellison, 2007). "Social networks are the most popular global communication phenomenon because humans are social beings and because social communication interests and attracts them" (Grbavac & Grbavac, 2014: 207).

2.1. The most popular social media networks

2.1.1. Facebook

A Facebook identity can be created in the form of a profile, page and group. Most human beings create a profile, and registration is very simple, and after the person registers, the process of searching for "friends" or persons with whom the new Facebook user wants to connect in the online environment begins. Facebook pages are most often created by legal entities, but sometimes natural persons also choose this option. Social networking is strongest in Facebook groups, where members of the community who are specifically related to a topic gather (Ramčić - Salkić, 2020). The social network Facebook is useful for businesses because they can quickly and conveniently connect with a large number of clients. Networking on social networks reduces the costs of business operations of companies, so the costs of marketing communication also decreased greatly after companies started using Facebook and other social media networks (Krajnović, Sikirić & Hordov, 2019).

2.1.2. Instagram

Instagram is a social network primarily for sharing visual content. Users share photos set in universal size with their followers in the mobile application. Moreover, filters can be added to photos to create different effects. The home page of an Instagram user shows all the photos that the user has uploaded. First, at the top of the page, the most recent photos are shown, and all the older photos go down (Krajnović, Sikirić & Hordov, 2019).

2.1.3. Twitter

Twitter is a social network used for microblogging or publishing blogs of small content (Stanojević, 2011). Twitter users are divided into two groups according to the frequency of Twitter use. Daily active Twitter users login to the platform at least once every day, and monthly active users spend at least one day a month using the platform (Lozić, 2021). In the very beginning, Twitter was conceived as a service through which free SMS messages are sent, and its secondary purpose was social networking (Twitter, a microblogging service). Today, Twitter is a popular social network used by users from all over the world.

2.1.4. TikTok

TikTok is a social network where users share short posts in the form of videos. The video can be recorded on any topic, but it can last up to 15 seconds. It evolved from the social network Musical.ly in 2018, because that year ByteDance took over Musical.ly and transferred all users of that social network to the new TikTok application. TikTok operates as an application that has made it easy and simple for its users to record videos and share them. As the videos are short, the process of making, posting and viewing them is quick and easy. Entertaining content posted by users captures attention and deals with a variety of topics. In the Chinese market, TikTok has a special application called Duyin, which counts 300 million active users per month (Geyser, 2022). It is important to convey authentic content, and "the most important thing is to choose an approach that will successfully convey the authentic story of an individual brand, respecting the characteristics and way of functioning of TikTok" (Bilić Arar, 2022).

3. MARKETING ON SOCIAL MEDIA

Social media networks and the growth in the number of their users have changed the way companies communicate with selected groups of consumers or target consumers. Companies are transforming their marketing programs and directing them to encourage communication and the exchange of opinions of a larger number of clients on social networks (Perkov & Pavlović, 2018). Marketing on social networks can be defined as "any strategy of a trade organization aimed at encouraging potential consumers (target markets) to voluntarily and free exchange information about a product or service, comment, "like" them, and thus create greater exposure of promotional messages" (Perkov & Pavlović, 2018: 187). With social media marketing, benefits are important, so social media marketing helps companies in many ways, as follows: increases company exposure; increases the flow of more customers and visitors; helps in the emergence of new partnerships; allows for a better position on the Internet search engines (a company with more developed social networks will be better ranked on the Internet search engines); leads to higher sales; helps in the creation of more qualified new clients, because improved products and services are of interest to new generations of consumers, and the reduction of spending on marketing (Krajnović, Sikirić & Hordov, 2019). Marketing on social networks is a powerful tool for business if it is used in promotion and communication with consumers (Ramčić - Salkić, 2020). According to Krajnović, Sikirić & Hordov (2019), there are three advantages of marketing on social networks. First, in social media marketing, products and services are presented to customers. Compared to traditional marketing, the difference is that customers' suggestions and complaints are listened to. Secondly, social media networks have facilitated the identification of desired consumer groups and influential groups of social network users. Influential users can become promoters of products and services and contribute to brand development. And third, costs are reduced since most of the social media networks are free, so social media marketing is much more affordable than conventional marketing. Furthermore, the benefits of social media marketing include contributing to environmental protection. Web promotion and advertising have reduced the consumption of paper, so the environment is less polluted (Grbavac & Grbavac, 2014).

This is also an advantage of marketing on social networks, and today, when a lot of attention is paid to the already heavily polluted environment, the lower environmental pollution is a great advantage of this type of marketing. However, social media marketing is not flawless. One of the most important disadvantages of marketing on social networks is the significant time investment because the successful use of social networks requires enough time (Krajnović, Sikirić & Hordov, 2019). Interaction and the two-way exchange of information are vital for success, so companies should hire a person or organization that will only deal with social networks. Furthermore, the use of social media networks makes it easier for other, malicious users to abuse intellectual property. Issues of trust, privacy and security are raised and these issues are a component of customer loyalty. Users can create ads that are credible in the eyes of consumers, and this opens up issues of a legal nature (the company can become responsible for marketing content created by the user). Consumers are enabled to create a positive as well as a negative image of the company and the product. Marketing campaigns are greatly harmed by posts on social networks in which the consumer spreads negative experiences related to the company's products or services. Negative announcements can harm the company and the company should neutralize them with a quick reaction. Social media marketing has its pros and cons, and businesses of all sizes and from all industries have been increasingly using it. Marketing professionals and social media marketing managers are facing the exploitation of the advantages of a relatively new form of marketing and counter its disadvantages.

4. INFLUENCERS – THE LEADERS OF NEW TRENDS

The profession of influencer is included in modern professions. An influencer is any person who has the power to influence the purchase of others due to their knowledge, authority, position, relationship with their audience or some other characteristic. Today, they make a significant impact on social networks, where each influencer has a reputation as an expert on a certain topic, so by regularly publishing posts on a certain topic, they create a network of followers (Geyser, 2022). In the last few years, more and more people are talking about influencers and following their work on social networks. Influencers are a modern phenomenon, especially popular in the last few years since they have increased their cooperation with marketing agencies. The special feature of influencers on social networks is their constant presence and work that is extraordinary (Kádeková & Holienčinová, 2018). Since influencers as a trend in the world of marketing appeared only recently, the classifications of influencers are still being worked on. For each influencer, the number of followers on social networks is most important, which is why the classification of influencers according to the mentioned criterion has been mentioned most often (Geyser, 2022). Table 1 shows the breakdown of influencers according to the number of followers.

Table following on the next page

Breakdown of influencers by number of followers	
Type of influencer	Characteristics
Mega influencers	Influencers with the largest number of followers on social networks (more than 1 million followers on at least one social network). Often, mega influencers are famous people who became famous because they were engaged in some other business, for example, actors, celebrities or athletes, but some mega influencers became famous precisely because of social networks.
Macro-influencers	Macro-influencers have from 40,000 to a million followers on social networks, so they are more accessible than mega influencers. This type of influencer has a prominent influence, and they are more accessible than mega influencers, so it is easier to get in touch with them and contract business cooperation.
Micro-influencers	Micro-influencers are ordinary people who have specific knowledge about one or more topics and have become famous because of it. They have a considerable number of followers on social networks (from 1,000 to 40,000), and the followers are interested in a specific topic that an individual influencer deals with. The development of the Internet has led to the spread of conversations about small, specific topics, and micro-influencers have a significant influence on the field they deal with.
Nano influencers	Nano influencers have the smallest number of followers, but they are highly specialized experts in a specific or unexplored area. Most often they have less than 1000 followers, but they are important for companies that produce specific products that otherwise have a small number of consumers (niches).

Table 1: Breakdown of influencers by the number of followers
(Source: Geyser (2022))

4.1. Influencer marketing

Influencer marketing on social media has been used since 2015 as Airbnb started collaborating with famous musicians. The first collaboration that launched influencer marketing was with the famous singer Mariah Carey, who received a paid stay in an Airbnb accommodation unit from which she published photos on her profiles on social media networks (Mesarić & Gregurec, 2021). Due to a certain lifestyle, achievements or some other reason, influencers are very popular and have numerous followers on social networks where they lead trends (Szczurski, 2017). The opinion of influencers strongly influences the formation of social attitudes, and influencers have the greatest influence on the young population. As a marketing trend, influencers are a new phenomenon, and they represent a sustainable marketing solution for all marketers who, in developing relations with their market, think outside the usual marketing frameworks (Kádeková & Holienčinová, 2018). Since they operate through social media networks, influencers have a wide scope of action. Every social media network is dominated by certain influencers who have their audience in the form of followers (Biloš, Budimir & Jaška, 2021). Influencer marketing is a specific form of marketing, so it is important for each company to choose influencers who meet the following important requirements: the company must try to choose a credible influencer; the online activities of the selected influencer must be aligned with his values; the life values and areas of interest of the selected influencer must overlap with the life values and interests of their followers (Kostić Stanković, Bijakšić, Ćorić, 2020: 156).
It is clear that not everyone can be an influencer and that influencers are special people that the audience loves and trusts.

"For consumers to trust the recommendations of influencers on social networks, these people must have significant expertise in a certain area, charisma and respect from other users, so that their credibility affects the value of the content and recommendations they provide in the online environment" (Kwiatek, Baltezarević & Papakonstantinidis, 2021: 182-183).

5. METHODS AND SAMPLE

Data analysis collected through the questionnaire was based on statistical methods. The respondents' sample was described by distributions according to defined characteristics: gender, age, level of study and type of study. Selected descriptive statistical indicators were calculated and interpreted for quantitative variables. The distribution of quantitative variables was tested with the Kolmogorov-Smirnov test. Non-parametric Mann-Whitney and Kruskal-Wallis tests were applied to test the significance of differences between defined groups. Differences confirmed at the level of significance $p<0.05$ were considered statistically significant. In this research participated 142 students from University North, Croatia. Out of this number, 65% were female students and 35% male students. Regarding age, respondents were divided into two age groups. The first age group consisted of students up to 26 years old, and the second group students aged 26 or older. The first age group was more numerous and included 58% of students. In the sample, 53% were undergraduate students, 22% of students studied graduate programmes, 18% of students study postgraduate specialist studies and the least are doctoral students (7%). Due to the relatively small number of doctoral students, for further analysis, they were joined by postgraduate specialist students. According to the type of study, 65% of students were enrolled in social studies, 21% in technical studies and 14% in biomedicine and healthcare.

Variable	Gender				Mann-Whitney test	
	Male		Female			
	Mean	Median	Mean	Median	*Z*	*p*
V1	3,82	4	3,70	4	-1,026	0,303
V2	3,06	3	3,01	3	-0,337	0,728

Table 2: Male and female students' attitudes about influencers and influencer marketing on social networks
(Source: Posavec (2022))

6. RESULTS

The conducted survey aimed to determine students' attitudes about influencers and influencer marketing on social media networks. Within this intention, the following variables were defined:

- V1: The importance of social media networks.
- V2: The influence of influencers on the purchase of certain goods or services decision.

Students' attitudes were measured on a five-point scale, ranging from 1 (poor) to 5 (excellent). Male and female students expressed the highest degree of agreement with the importance of social media networks (Table 2). The median was the same for both analysed groups. According to the Mann-Whitney test, there is no statistically significant difference in the attitudes between male and female students regarding influencers and influencer marketing on social media networks. Gender does not influence the formation of attitudes about influencers and influencer marketing.

Variable	Age groups				Mann-Whitney test	
	18-25		26-55			
	Mean	Median	Mean	Median	*Z*	*p*
V1	3,74	4	3,73	4	-0,291	0,772
V2	2,99	3	3,08	3,5	-0,432	0,667

Table 3: Students' attitudes about influencers and influencer marketing on social networks by age group
(Source: Posavec (2022))

Slightly higher mean and median of analyzed variables were calculated for the second-age group students (Table 3). The results of the Mann-Whitney test indicate that there is no statistically significant difference in the attitudes between first and second-age groups students regarding issues related to influencers and influencer marketing on social networks. Since both age groups use social networks, they are equally exposed to the influence of social networks, it was expected they would equally perceive their importance.

Variable	Level of study						Kruskal-Wallis test	
	Undergraduate		Graduate		Postgraduate			
	Mean	Median	Mean	Median	Mean	Median	*H*	*p*
V1	3,47	4	4,06	4	4,03	5	12,522	0,001
V2	2,59	2	3,56	4	3,49	4	12,356	0,002

Table 4: Students' attitudes about influencers and influencer marketing on social networks according to the level of study
(Source: Posavec (2022))

The lowest mean and median for all analysed variables were detected for undergraduate students (Table 4). According to the Kruskal-Wallis test, statistically significant are differences in all questions. The test for multiple comparisons determined that between the importance of social networks and the influence of influencers on the purchase of a certain good or service, there is a significant difference between undergraduate and graduate students, and undergraduate and postgraduate students.

Table following on the next page

Variable	Type of Study						Kruskal-Wallis test	
	Technical		Social		Biomedicine and healthcare			
	Mean	Median	Mean	Median	Mean	Median	*H*	*p*
V1	3,30	3,5	3,85	4	3,90	4,5	6,157	0,046
V2	2,60	2	3,08	3	3,45	4	3,476	0,176

Table 5: Students' attitudes about influencers and influencer marketing on social networks by type of study
(Source: Posavec (2022))

The highest mean and median for all variables were detected for postgraduate students. According to the Kruskal-Wallis test, only in the case of the influence of influencers on the decision to purchase a certain good or service, there is not a single group of students that, considering the type of study, differs statistically significant from the others. Regarding the importance of social networks, differences between undergraduate and postgraduate students were confirmed.

7. DISUSSION AND CONCLUSION

The aim of this paper was to examine the attitudes of the University North students about influencers and influencer marketing on social networks. A statistically significant difference in attitudes between male and female students regarding issues related to influencers and influencer marketing on social networks has not been confirmed, so it cannot be claimed that gender affects differences in attitudes about influencers. The respondents in this research are students who equally, regardless of gender, perceive the importance of social networks and the influence of influencers on making a purchase decision. The respondents were divided into two age groups. The results of the statistical test showed that there is no statistically significant difference in attitudes about influencers and influencer marketing on social networks between students of the first and second age group. Since both age groups use social networks, the respondents are equally exposed to the influence of social networks. Therefore, it was expected they would equally perceive their importance. Social networks are an indispensable communication channel in the private and business segments of life. Students often organize their communication in closed groups on social networks, so it is not surprising that there is no difference in the perception of their importance. Both groups of students are equally exposed to the activities of influencers, and as today the boundaries between different age groups are shifted and mixed, it is understandable that there will not be a statistically significant difference in the influence of influencers on making purchase decisions, which would depend on the age of the respondents. It has been confirmed that there is a statistically significant difference regarding the importance of social networks and the influence of influencers on the purchase of a certain good or service, in which undergraduate and graduate students, and undergraduate and postgraduate students, differ significantly. For undergraduate students, social networks are not as important as for their graduate and postgraduate colleagues. As the research did not examine what social networks are used for, the reason for such a result cannot be determined. It is possible that undergraduate students do not see the importance of social networks because they are more used to them than their graduate and postgraduate colleagues.

Influencers have the least influence on making a purchase decision among undergraduate students, and the most among graduate students. It is possible that undergraduate and postgraduate students are bigger consumers or they are more aware of the influence of influencers. Similar conclusions are also related to the type of study where students of technical, social and biomedical and healthcare studies answer differently to questions related to influencers and influencer marketing on social networks. The results of this research represent a major scientific contribution to the literature on influencers and influencer marketing and have brought new insights to entrepreneurs, marketing experts and the academic community.

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MODEL OF AGRICULTURAL WASTE MANAGEMENT BY THE MUNICIPAL SERVICE COMPANIES

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ABSTRACT

Agricultural production has increased more than three times over the last 50 years as a result of the expansion of soils for agricultural purposes, the technological contribution of the green revolution which influenced productivity and the accelerated population growth. In average, agriculture produces 23.7 million food tons per day worldwide. This increase in worldwide production has created serious pressure on the environment, up to the point of causing negative impacts on soil, air and water resources. This new situation has driven a need for more sustainable development in recent years, which implies important changes in the current agricultural production systems. Agriculture is one of the largest biological sectors with the highest biomass production, which becomes an essential input for the bioeconomy. This represents a great opportunity, not only because its use and exploitation contribute to the reduction of fossil fuel use and greenhouse gas emissions, but also because it contributes to the development of new green markets and jobs by promoting the conversion of crop waste into value-added products (by-products), such as food, feed, bioproducts and bioenergy. Croatia is country with important role of tourism and agriculture in its development. East Croatia (five counties), as the most important crop production area produce the greatest share of cerals and industrial crops in Croatia. All those crops leave important amounts of after harvest residues even when biomass for soil protection, amounts for livestock and harvest losses are excluded. In 5 east Croatia counties in 2020 is produced 2,389,665.7 t of biomass technical potential. At the same time, municipal services companies in Croatia are very well organized and connected in Croatia.

The paper will present model how municipal services companies can contribute to collect and produce byproducts as composts and substrates from an agricultural waste. This would increase business competitiveness of municipal services companies due to production and sales of new value-added products, opening new jobs and provide agricultural producers additional profit, safe disposal of agricultural waste as well as contribute to the rural development.
Keywords: *field crops, biomass, by-products, municipal service companies, east Croatia*

1. INTRODUCTION

Croatia is struggling mightily to achieve both national and EU recycling targets and comply with the national legislation and EU directives. According to the current Waste Management Plan of the Republic of Croatia for the period 2017–2022 (Official Gazette 3/17), in 2015 the recycling rate of municipal solid waste (MSW) was 24%, with most of its waste being landfilled. Croatia's current problems are rooted in strategic, top-down, decisions made in 2005, when the Croatian Parliament adopted the Strategy on Waste of the Republic of Croatia (Official Gazette 130/05). The strategy envisioned 13 large-scale waste management centres equipped with mechanical–biological treatment (MBT) technology with the aim of producing high-quality, solid recovered fuel (SRF) to be used in energy-intensive industries (Beckmann et al., 2012). At the same time, future projections predict higher growth in agricultural production, wherein end purposes are not only limited to food for the global population (FAO, 2017), but also use as animal food and industrial needs. The rapid growth of bioenergy production from biofuel (Hazell and Pachauri, 2006) is an example of agricultural crop diversification in recent years, especially those crops with a high content of starch and cellulose. For example, the cereal starch, mainly derived from maize and wheat, is mostly used as raw material to produce ethanol (FAO, 2008). Agricultural vegetal wastes, known as biomass, have an important potential to produce sustainable energy from renewable fuels (FAO and UNEP, 2010). Croatin practice is that most agricultural and industrial waste is incinerated or not properly disposed, and improper disposal of waste from agriculture is an environmental and climatic problem that has a detrimental effect on human and animal health (Sadh et al., 2018; Gontard, 2018). Field residues are residues that are present in the field after the process of crop harvesting. These field residues consist of leaves, stalks, seed pods, and stems, whereas the process residues are residues present even after the crop is processed into alternate valuable resource (Lončarić et al., 2021; Golubić et al., 2018). The large quantities of biomass available in east Croatia can be significant raw material for further processing into organic fertilizers, substrates, compost, products for pharmacetical, cosmetic, food and animal feed industry. In this process municipal service companies can be the important factor for compost production because of its equipment, experiance and technology know-how.

2. MATERIAL AND METHODS

The paper uses recent literature in the field of circular economy, waste management, and the organization and scope of work of municipal service companies in the Republic of Croatia. To calculate the amounts of agricultural waste, the term of technical potential was employed. The technical potential of 5 counties in east Croatia for 2021, the RenewIslands ADEG methodology was used according to the research of Scarlat et al. (2010), Ćosić et al. (2011) and Asakereh et al. (2014). The technical potential of biomass was calculated for harvest residues of wheat, barley, maize, sunflower, rapeseed, soybean and sugar beet. The technical potential of wheat and barley biomass is obtained by subtracting from the total amount of harvest residues of the mentioned crops the amount of residues required for fertilization, soil protection and livestock production.

Finaly, the technical potential of biomass in maize, sunflower, rapeseed, soybean and sugar beet is obtained by subtracting from the total biomass potential the amount needed to leave for soil protection and the amount that remains in the field (losses) during harvest. The possibility of using municipal service companies for the purpose of collecting and recycling agricultural waste is presented with a verbal model.

3. RESULTS WITH DISSCUSSION

3.1. Circular economy and waste management in Croatia

As early as 1972, waste management was accepted in the EEC Environment Action Plan and since then it has been part of European priority policies. This policy is based on a hierarchy of waste that has a certain order of priorities when shaping waste policy: 1) prevention, 2) reuse, 3) recycling, 4) the least good option - disposal and incineration without generating energy (European Commission, 2016). Furthermore, in 2015, the EC launched the Circular Economy Package, which includes various proposals for waste-related laws aimed at stimulating the European transition towards a circular economy. As an EU member state, Croatia must also accept the circular economy package. It is important to mention that as of January 2019, Croatia is no longer in a transition period regarding waste management. Another postponement was also approved until January 1, 2021, and it concerned the amount of biodegradable waste going to landfills (Internal document, Information on the results of EU accession, Transional periods). There are numerous Croatian regulations governing the political framework related to waste management and circular transition with the aim of harmonizing the policy with the rest of the EU:

- The Act on Sustainable Waste Management (OG, No. 94/2013),
- Ordinance on waste management (OG, No. 23/2014, 51/2014, 121/2015, 132/2015),
- Ordinance on packaging and packaging waste (OG, No. 88/2015, 78/2016),
- Waste Management Strategy of the Republic of Croatia (OG No. 130/2005),
- Ordinance on by-products and end-of-waste status (OG No. 117/14)
- Waste Management Plan for the Republic of Croatia for the period from 2017 to 2022 (OG No. 3/2017)
- other specific categories of waste (textiles, footwear, tires, spent oil, batteries and accumulators, vehicles, medical waste, electrical and electronic equipment, garbage waste and waste containing asbestos) are regulated by additional regulations.

Accoding to Eurostat database about waste statistics in European Union (Table 1), total waste by category is devided into following categories: chemical medical waste, recyclable waste, equipment, animal and vegetal waste, mixed ordinary wastes, common kludges and mineal an solidifies wastes. Also, wastes can be classified by economic activity according to NACE (acronym used to designate the various statistical classifications of economic activities developed since 1970 in the European Union) into: all NACE activities plus house holds (total); agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity, gas and steam and airconditioning supply; water collection, treatment and supply, sewerage, remediation acivities and other waste management services; waste collection, treatment and disposal activities, materials recovery; construction; servicies (except wholesale of waste and scrap); wholesale of waste and scrap. European Union produce above 2 billions of tonnes of total waste with tendention of increasing since 2010. The year 2020 is an exception because then Great Britain was no longer included in EU statistics due to Brexit.Croatia participes around 0,2 percent in EU (Table 1). The increasing amounts of total waste can be noticed (3,157,672 t in 2010 and 6,003,760 t in 2020.

	2010	2012	2014	2016	2018	2020
EU 28	2,454,710,000	2,483,800,000	2,506,789,000	2,530,980,000	2,620,400,000	2,150,950,000
Croatia	3,157,672	3,611,678	3,724,563	5,366,953	5,543,310	6,003,760
% HR in EU (total waste)	0.13	0.14	0.15	0.21	0.21	0.28

Table 1: Total waste in EU28 and in Croatia (2010-2020) in tonnes
(Souce: Eurostat/ https://ec.europa.eu/eurostat/web/waste/data/main-tables)

Although all kinds of wastes are very important, very much in focus is municipal waste and from this paper point of view, agricultural waste. The world generates 2.01 billion tonnes of municipal solid waste annually, with at least 33 percent of that—extremely conservatively—not managed in an environmentally safe manner. Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 4.54 kilograms. Though they only account for 16 percent of the world's population, high-income countries generate about 34 percent, or 683 million tonnes, of the world's wast (World Bank, 2018). On the waste collection rate by region, Nort America is leader on the world (100%), followed by Europe and Central asia (90%), Latin Amenrica (84%), Middle East and North Africa (82%), East Asia and Pacific (71%), South Asia (44%), same as Sub-Saharan Africa. Around the world, almost 40 percent of waste is disposed of in landfills (Figure 1). About 19 percent undergoes materials recovery through recycling and composting and 11 percent is treated through modern incineration. Although globally 33 percent of waste is still openly dumped, governments are increasingly recognizing the risks and costs of dumpsites and pursuing sustainable waste disposal methods.

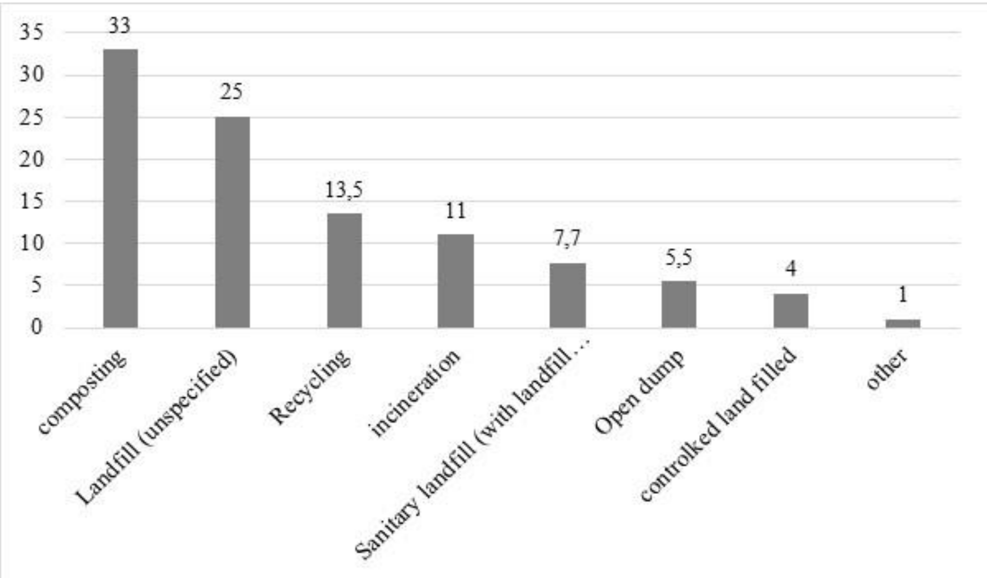

Figure 1: Global waste treatment and disposal (percent)
(Source: World Bank, 2018)

As said, the municipal solid waste is one of several waste streams that countries and cities manage. Other common waste streams include industrial waste, agricultural waste, construction and demolition waste, hazardous waste, medical waste, and electronic waste, or e-waste (Figure 2). Globally, agricultural waste amounts 3.35 kg per capita per day and it is on second place following industrial waste (12.73 kg per capita per day).

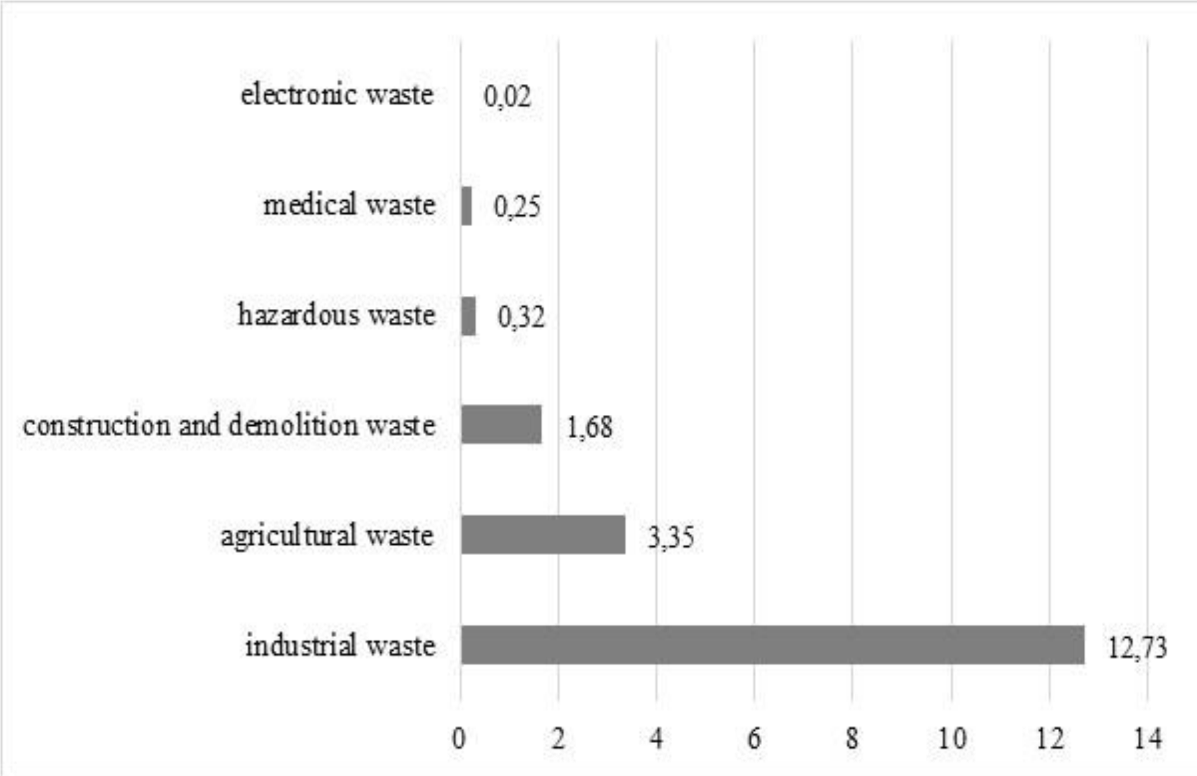

Figure 2: Global average special waste generation (kg/capita/day)
(Source: World Bank, 2018)

Generation of industrial waste rises significantly as income level increases. According to Runko Luttenberger (2020) despite the obligations assumed by Croatian accession to the European Union in 2013, municipal waste still mainly ends at landfills, even in regions where significant investments were made in waste management centres based on mechanical- biological treatment, and in which mixed waste is collected and processed into refuse-derived fuel and disposed at so-called bioreactor landfills. Waste management sector in Croatia necessitates substantial restructuring if it is to achieve compliance with circular economy. Since Croatia is far from achieving specific targets, in 2016 an attempt was made to adopt a strategic waste management document that would have paved the way to reaching circular economy targets, but its contents were substantially modified in course of its adoption, preserving the concept devised a decade and half ago. Global agricultural waste production is more than four and a half times that of municipal solid waste. Agricultural waste is most significant in countries with large farming industries. Agricultural waste (AW) is often managed separately from other waste streams since it is largely organic and may serve as a useful input for future agricultural activities. The major categories of AWs that have raised the public concern and have threatened the sustainability of agricultural regimes include crop residues (leaf litter, seed pods, stalks, stems, straws, husks, weeds), livestock wastes (urine, dung, wash water, residual milk, waste feed), poultry waste (spilled feed, feathers, droppings, bedding material), slaughterhouse waste (blood, hair, hides, flesh, bones etc.), agro-industrial waste [bagasse, molasses, peels (orange, potato, cassava) pulps (orange, apple, mango, guava, pomegranate, pineapple, papaya, tomato etc.), oil-seed cakes (palm kernel cake, groundnut, soybean, mustard, coconut etc.] and aquaculture wastes (uneaten feed, faecal waste) (Seidavi et al., 2019; Tripathi et al., 2019; Duque-Acevedo et al., 2020). According to Eurostat, agricultural waste accounts about 21 millions of tonnes, while Croatia participate with 0.26 % in 2020, but increasing of agricultural waste is prominent from 2010 (Table 2).

	2010	2012	2014	2016	2018	2020
EU 28	21,000,000	21,380,000	18,710,000	20,710,000	20,870,000	21,490,000
Croatia	14,223	75,096	269,111	496,153	550,471	556,300
% HR in EU (agr. waste)	0.01	0.03	0.14	0.24	0.26	0.26

Table 2: Agricultural waste in EU28 and in Croatia (2010-2020)
(Source: Eurostat/ https://ec.europa.eu/eurostat/web/waste/data/main-tables)

Interest for agricultural waste is noticed in scientific community as well. Duque-Acevedo et al. (2020) establish that agricultural waste has been studied worldwide for more than 60 years and that research on this issue has become more relevant from 1998. However, it has been in the last 13 years that more than 60% of the scientific production on this field of study has been generated. The United States, India and China are the countries with the greatest number of studies, whose central axis has been the use and exploitation of agricultural residues, derived from cereal crops, mainly wheat and corn, as they are the main producers of this type of crops. Many authors, mainly from government and academic institutions, have contributed considerably to this research topic. The evolution of their studies evidences a change in the original approach, due to the influence of the new global energy and environmental policies developed during the last decade.

3.2. Potential of agriculture in fiel crop biomass recycling

East Croatia is Croatian the most important agricultural region (Table 3). East Croatian is consisted of 5 counties: Brod-Posavina, Osijek-Baranja, Požega-Slavonia, Virovitica-Podravina and Vukovar-Srijem. It participates 48,21 in all agricultural crops, 56.84% in cereals, around 81 % in oelseeds and soy and even 97.56 % in sugar beets.

Crops	Republic of Croatia	5 east Croatia counties	%
All	1,095,312	527,963	48.21
Cereals	513,550	291,924	56.84
Oilseeds	86,989	70,945	81.56
Soy	166,616	135,614	81.39
Sugar beets	11,388	11,076	97.26

Table 3: Agricultural areas of the most important agricultural crops – Republic of Croatia and 5 east Croatia counties (ha)

Considering significant agricultural production there is produced the significant amounts of biomass. According to used methodology for calculation of agricultural waste technical potential it is calculated that East Croatia produces 2,389,665.7 t of biomass technical potential, or biomass what can be treated as waste. The most of biowaste from agriculture comes from maize (973,636 t), wheat (550,299 t) and soybeen (345,531 t). Mostly that waste is not properly managed. Farmers are not informed enough about possibilities of biowaste recycling or they do not have needed mechanization or enough motivation and time to deal with that. At the same time, municipal service companies in Croatia are very well organized and conected in Croatia (next cpapter) what can be applied concerning agricultural waste as well.

3.3. Role and importance of municipal service companies in biomass waste management

Croatia is creating the conditions to keep pace with the circular economy by taking measures relevant to the Sustainable Consumption and Production Plan: recycling yards, recycling centres with sorting facilities, and composting and biogas plants where separately collected waste is processed for recycling (One Planet Network, 2022).

The backbone of the plan, which is in line with the Waste Framework Directive, is the separate collection of paper, cardboard, metals, glass, plastics and bio-waste, the separate collection of waste at the doorstep, the introduction of incentives for the public collection of municipal waste according to composition and quantity, the introduction of a charge for the disposal of municipal waste, the promotion of domestic and municipal composting, the construction of sorting facilities, IT support for the monitoring of waste streams and a range of education and information measures (One Planet Network, 2022). Biowaste is defined as biodegradable waste from gardens, parks, food and kitchen waste from households, restaurants, catering and retail establishments and similar waste from the food industry that decomposes anaerobically or aerobically. Fractions of biodegradable municipal waste should be collected separately from municipal waste as much as possible and disposed of in a way that allows for their recycling or decomposition (Ahmed et al., 2021; Puntarić et al., 2022). In the Republic of Croatia there is 194 enterprises registered for the collection of mixed municipal waste in 2021. In the period from 1997 to 2010, the amount of disposed biodegradable municipal waste has grown with the increase of produced biodegradable municipal waste. Since 2011, there has also been an increase in the amount of biodegradable waste, while the amount of disposed waste has been decreasing as a result of the introduction of separate municipal waste collection (Puntarić et al., 2022). After a multi-year trend of stable values, the amount of biowaste from municipal waste, which amounted to about 530,000 t in the period from 2012 to 2019, was found to decrease between 7.0% and 8.0% in 2020 and 2021, due to the decrease in the amount generated in mixed municipal waste. Also in the same period (2012 - 2021), it can be seen that the amount of separated and collected biowaste is increasing. In the period from 2020 to 2021, the amount of separately collected biowaste increased from 118,692 t to 122,175 t (Puntarić et al., 2022). Separately collected municipal biowaste contains 54.0% biodegradable waste from gardens and parks, 40.0% biodegradable waste from kitchens and canteens, 5.0% of waste is edible oils and fats and 1.0% of biowaste contains biodegradable waste from markets. About 20.0 % of the generated biowaste (97,198 t) was sent for recycling (composting, anaerobic digestion, etc.), which is an increase compared to 2012, when only 4.85% of the generated biowaste was sent for recycling (Puntarić et al., 2022). Data on biodegradable municipal waste generated is based on reports from public providers, services, recycling centres, retailers, waste processors and waste exporters. According to the reported data, 1,101,925 t of biodegradable municipal waste was generated in 2021, an increase of 3.9% compared to 2020, when the amount of biodegradable municipal waste generated was 1,058,703 t. The largest amount of the created biodegradable municipal waste are recorded in the City of Zagreb (20.3%), Split-Dalmatia County (14.0%) and Primorje-Gorski Kotar County (10.0%), while Osijek-Baranja, Vukovar-Srijem, Brod-Posavina, Požega-Slavonia and Virovitica-Podravina Counties generated 12.6% of biodegradable municipal waste (Puntarić et al., 2022).There are twelve active composting plants in the Republic of Croatia. In 2021, ten composting plants collected 88,227 t of waste, of which 76,611 t was municipal waste. The largest amounts of municipal waste collected are in the City of Zagreb (28,917 t), Zagreb County (10,337 t), Koprivnica-Križevci (9,601 t) and Osjek-Baranja County (8,459 t). According to the data, more than 20.0% of waste was received compared to previous years and 75,546 t was composted. In the case of biogas plants, a decrease of about 37.0% was recorded compared to previous years. Biogas plants in the Republic of Croatia process most of the biodegradable waste from kitchens and canteens. In 11 biogas plants, 17,295 t of municipal waste were processed by anaerobic digestion. The main reason for this decrease is the high percentage of impurities in separately collected municipal biowaste, which the biogas plants cannot process (Puntarić et al., 2022). According to Puntarić et al. (2022), the continuous implementation of education and information activities must continue in the future to raise citizens' awareness of their role in the generation and prevention of waste and waste separation at the point of generation.

Some of the separately collected waste still ends up in landfills, so that in 2021 74.0% of the separately collected waste was processed, bringing the recycling rate to 32.0%. The recycling rate was 31.0%. This is an increase of 2 percentage points compared to the 2020 recycling rate (Puntarić et al., 2022). Although there is a significant increase in the recycling rate in the period from 2017, the target of 50.0% in 2021 is not reached (Puntarić et al., 2022). According to EUROSTAT data (2022), the annual per capita generation of municipal waste in the Republic of Croatia increases in the period from 2012 (391 kg) to 2021 (454 kg). The situation is similar in the Western Balkans, where municipal waste generation per capita has increased in Kosovo, Northern Macedonia and Serbia, remained relatively stable in Bosnia and Herzegovina and Montenegro, and decreased in Albania. Municipal waste generation ranges from 250 kg per capita in Kosovo to 500 kg per capita in Montenegro. Nevertheless, these values are lower than the EU average of 505 kg per capita in 2020, which could be due to differences in data collection methods (European Environment Agency, 2022). In the Republic of Croatia, the average of waste disposal is 99.6%, in most Croatian Counties it is 100.0%, in Požega-Slavonia County it is 99.5% and in Primorje-Gorski Kotar County it is 99.2%. The situation in Romania is somewhat different. According to Vrabie (2021), waste management coverage is 80.0%, while in the main and largest city (Bucharest) it reaches 100.0%. 20.0% of waste is illegally incinerated or disposed of in unauthorised landfills. Vrabie (2021), following Pfau et al. (2017), suggests that in order to improve the recycling of bio-waste, the use of raw materials and agricultural residues should be taken into account when elaborating policies to promote recycling through composting and biogas plants. In the coming period, it is necessary to continue the implementation of the already existing education and information programmes aimed at preventing the generation of waste and extracting useful waste at all levels. It is also necessary to continue to invest in the additional development of the special categories of waste management systems, especially in the closure and remediation of illegal landfills, in the improvement of existing and the construction of additional infrastructures for the processing of collected waste: sorting facilities, facilities for processing separately collected bio-waste, facilities for processing recyclable waste and in the construction of new and more centred landfills that meet EU standards (European Environment Agency, 2022; Puntarić et al., 2022). Taking into account the amount of agricultural waste (shown on the example of 5 counties of Eastern Croatia) and the number and distribution of municipal companies, and especially composting centers, a model can be proposed to connect agricultural waste from farms and municipal services companies with their composting technology for mutual benefit. One of the ways is that agricultural producers collect agricultural waste from arable land by themselves in a suitable form and according to certain standards (biostability) and deliver it to municipal service companies that have composting facilities. Given that agricultural waste is a raw material here, and compost is a new product that has a market price, farmers can be charged a proportionate amount of compost according to the quantity and quality of agricultural raw material. However, since the majority of farmers in eastern Croatia are so-called small producers with modest machinery and manpower, we suggest establishing either cooperatives by agricultural producers or independent companies by third parties to collect and transport agricultural residues from arable land to the municipal services companies. Mechanization for collection and transport could be obtained relatively easily from the European Union's funds, considering the importance of care for the environment in the European Union's agenda. Cooperatives would function according to a commission system depending on the amount of collected and transported waste, and agricultural producers would be charged, as in the previous case, for the delivered raw material. It could be win-win situation for all factors: producers, intermediate companies and municipal service companies. Of course, both the first and second proposals imply the expansion of the capacity for biostabilization and composting of municipal service companies.

4. CONCLUSION

Croatia, as a member of the European Union, has more or less successfully accepted the EU plans and laws that commit it to environment preservation and waste management. The focus of this paper is agricultural waste, since Croatia is a country with a significant role of agriculture in its strategies. The amounts of agricultural waste (technical potential representing a pure surplus of agricultural residues) are shown on the example of 5 counties in eastern Croatia. The quantities of agricultural biomass technical potential are around 2,389,665.7 tons per year. Since agricultural producers generally do not dispose the waste in an appropriate way, the paper proposes how municipal services companies can contribute to the recycling of agricultural waste into new useful products (compost or substrates) for mutual benefit. This would increase business competitiveness of municipal services companies due to production and sales of new value-added products, opening new jobs and provide agricultural producers additional profit, safe disposal of agricultural surplus as well as contribute to the rural development.

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THE EFFECT OF CORPORATE GOVERNANCE AND GENDER DIVERSE BOARD ON THE LEBANESE BANKS FINANCIAL AND SOCIAL PERFROMANCE

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ABSTRACT

The main objective of this paper to find whether strong CG affects board composition with respect to gender diversity and if the latter have any effect on the corporate economic and social performance in the Lebanese banking sector. While the topic of women on board and corporate performance have received major attention in developed countries, very little research has been done in the Middle East region and in Lebanon exactly. Using data on the 66 Lebanese banks from 2008 to 2016, we examine the effect of women on board on the banks' financial and social performance. Regression analysis and ANOVA testing have been completed to test the hypothesis developed during the paper. With respect to corporate governance, the results show that the governance structure does not affect the status of women on board, nor does it affect the ROA or ROE of the bank. This could be attributed to the "tokenism" status as it shows that the number of women on banks' board all over Lebanon does not exceed 3 women in only one bank (years 2015, 2016) from the banks tested. However, it was noticed that banks with high ranking had higher CG-index than smaller banks. Regarding the effect of women on board to corporate performance, the results show that women on board have significant negative effect on the financial performance of the bank when measured by ROA, but with no effect when measured by ROE. On the other hand, regression results show that women on board have significant positive relationship on the corporate social performance of the banks.

Keywords: *Banks, Corporate Governance, Financial Performance, Gender Diverse Board, Social Performance*

1. INTRODUCTION

Corporate Governance (CG) are the rules and regulations set that ensure managers are working towards achieving the goals of the company and maximizing shareholders' wealth. Understanding CG is of high importance due to the growing literature of this topic across accounting, economics, finance, and management studies. Scholars have given major attention to understanding CG and its effect on the organizations after the financial scandals in early 2000's (Lavelle, 2002). Those corporate scandals have lifted the veil on the secrecy and the "halo" of the board of directors (Burke, 1993; Grant, 2003), which is a major component of CG. Since then, the literature has focused on the board of directors' composition covering the demographic dimensions and the effectiveness of board of directors in fulfilling their roles and duties (Burke, 2003; Levrau & Van den Berghe 2007). While the effect of demographic dimensions on corporate performance is not easily analyzed and could be complicated to examine (Forbes & Milliken, 1999), there are many articles presenting positive evidence to having women on board and its benefits on corporate performance. Many research have concluded that women on board are considered as a competitive advantage to what they can add to the board diversity and decision-making process. However, this is not fully supported, as there are contradictory findings where women on board can negatively affect the corporate performance and in some times have no effect.

2. LEBANESE BANKING SECTOR CHARACTERISTICS

The Lebanese banking sector plays an important role in boosting the Lebanese economy (Blominvest Bank, 2019; Banque du Liban, 2019). Banks dominate the financial system and are considered one of the major providers of credit to enterprises and individuals, if not the sole provider. Banks and financial institution fall under the authority of the Lebanese Central Bank which is “bank regulatory authority” that is known as Bank of Lebanon or Banque du Liban (BDL). BDL governs the banking industry; it issues directives/circulars/policies to monitor banking transactions and activities. Those banks not complying with the circulars issued by BDL are subject to fines and penalties by the Banking Control Commission (BCC), bank supervisory authority. BCC was established in 1967 and works to ensuring banks abiding by the rules and regulations set by BDL. As of December 2016, the numbers of banks operating in Lebanon were 66 banks of which 50 are commercial banks and 16 are investment banks. Those banks have 1,078 branches within Lebanon. From the 66 banks, 18 banks have 359 banking units spread across 32 countries and 90 cities (Association of Banks in Lebanon, 2017). In addition, the banking sector’s assets as of December 2016 were equivalent to 409% of GDP (Byblos Bank, 2017). This percentage is considered one of the highest ratios in the world, which reflects the continuing ability of the banking sector to meet the borrowing needs of both the private and public sectors, as well as to maintain high levels of liquidity and capitalization (Byblos Bank, 2017). The constant monitoring of banks activity by BDL and BCC plays an important role in the stability of the sector.

3. CORPORATE GOVERNANCE IN LEBANON

CG in Lebanon is not very well established (El-Kassar et al., 2015). Not until 2004 did the Lebanese government initiated CG discussion (Gali et al., 2016), thus the concept of CG is still new. The basics of CG are documented in the Lebanese Code of Commerce that was established in 1942 in addition to minor additions established by the Beirut Stock Exchange (BSE) regarding public companies. The code of commerce is very old and does not highlight the new requirements for sound CG (Chahine & Safieddine, 2009; Gali et al., 2016). Given that and the lack of governmental actions, two non-governmental agencies (the Lebanese Transparency Association (LTA), and the Lebanese CG Task Force) took the initiative to launch the Lebanese Code of CG in the mid of 2006. The main challenge faced for having effective and proper implementation of CG is the lack of awareness about this topic and the attachment of stakeholders to traditional approaches for handling the businesses. This is common among various types of businesses in Lebanon. Most of the Lebanese banks origins are traced to family ownership, hence the ownership and CG dilemma. In addition to the above obstacles, the implementation of CG also faces another obstacle that has to do with weak Lebanese legal system. The code of CG that was developed is to be used by all companies and public. However the Lebanese banks under the directory of BDL are required to follow the circulars issued by BDL, accordingly the BDL as the supervisory entity of Lebanese banks, issued several circulars and guidelines about the importance of CG and principles to be followed by the banks. The circulars issued by BDL ensure the importance of sound CG practices. Those circulars require banks to disclose certain financial and non-financial information to public. If banks do not abide by the code the control commission BCCL fines them.

4. LITERATURE REVIEW

4.1. Corporate Governance

Following the corporate financial scandals in early 2000’s, researchers directed their attention to CG structure. Similarly, the US congress passed the Sarbanes Oxley law (SOX) that governs the act of public companies. The SOX is considered to be the most the most sweeping regulation encompassing CG in the US over the last 70 years (Byrnes et al., 2003).

Due to the high importance of the CG, the OECD issued principles of CG in 1999 that were later revised and released in 2004. The OECD member countries adopted those principles in order to improve their CG structure in their countries. The non-binding principles later on became benchmark for regulators and companies around the world to structure their CG (Jesover and Kirkpatrick, 2005). The principles are divided into six categories (1) Ensuring the basis of an effective CG framework, (2) The rights of shareholders and key ownership functions, (3) The equitable treatment of shareholders, (4) The role of stakeholders in corporate governance, (5) Disclosure and transparency, (6) The responsibilities of the board. Those principles serve as a reference tool worldwide and provides the necessary guidelines for corporations and regulatory agencies. Consistent with the high need to better structure CG in the companies, several rating agencies attempted to find a way to measure CG and help companies evaluate the strength and weaknesses of corporate governance. Various rating systems were tested and used such as Governance Metrics International (GMI), Governance Score (CGS) of Standard & Poor's, and Institutional Shareholder Services (ISS) Quick score.
Having effective CG is reflected in qualified board of directors and audit committee (Xie et al., 2003, Denis & McConnell, 2003; Bronson et al., 2009; Al-Thuneibat et al., 2016; Samra, 2016), which creates a system of greater control over managerial actions. According to these authors, one major component of successful CG is board diversity, which includes gender diversity. Having a diverse board has become of major importance in the CG structure (Sheela & Ten, 2016). CG plays an important role in setting the goals and shedding the light on important aspects of the company's structure. It creates a system of greater control over managerial actions. Consequent to the corporate scandals, and in a way to regain the trust of stakeholders, the demand to better CG structure with restructuring for the boardroom have increased (Cheng, 2003; Bandsuch et al., 2008; Xie & Peng, 2009). Studies lately highlighted the importance of CG in changing board composition by increasing board diversity such as gender and age among other characteristics. Alpha banks and banks with high local ranking are expected to be more aware of the importance of an effective CG structure as they are more exposed to international investment that requires higher standards. Consequently, to assess whether strong CG affects board composition with respect to gender diversity and if the latter have any effect on the corporate economic and performance in the Lebanese banking sector, the following hypotheses were developed.

- ***Hypothesis 1:*** *Banks with high Lebanese ranking (alpha banks) have strong corporate governance.*
- ***Hypothesis 2:*** *Strong CG affects board gender composition.*
- ***Hypothesis 3:*** *Strong CG affects banks' financial performance.*

4.2. Banks' Financial Performance

The topic of women on corporate boards has gained attention recently in the literature (Terjesen et al., 2009). The main concern is whether women presence on board affects the financial performance of the companies. It is reasonable to believe that gender diverse board leads to better practices and improved relations with various stakeholders that eventually lead to better economic performance (Keatinge & Eaton, 2013). CG literature handled CG practices and women on boards mainly in developed countries, leaving developing countries CG barely explored. The CG reforms that were undertaken in several developed countries were under assumption that women on board are positively related to firm performance. In order to investigate this topic in developing countries (taking the example of Lebanon), the following hypotheses were developed.

- ***Hypothesis 4:*** *Women on board affect banks' financial performance.*

4.3. Banks' Social Performance

It is essential that corporation be part of programs that give back to society given the negative effect businesses cause the planet (Carroll, 2016). The inclusion of social responsible plans in the business strategy of the company can develop a competitive advantage (Serpa & Fourneau, 2007). However social performance measurement has inherent difficulty, as there are no standards or measures to accurately assess company's social performance and it is not quantifiable. The effects of social responsible acts are seen on the long run and might not result in immediate improvement. Furthermore, social responsible acts are dependent on the need of the country, the social environment, political factors, and management perception. While board of directors might be interested in implementing social responsible acts which benefit the society and the company on the long run, management might not be interested in that as they focus on short term benefits. All of these make CSR measurement more complex than the financial performance measurement. To unify the sustainability reporting globally, the Global Reporting Initiative (GRI) developed a framework that can be applicable for different countries. To protect stakeholders and provide them with the necessary information, the GRI developed principles that corporations can follow to have transparent disclosure regarding the economic, social, and environmental performance. The GRI principles are non-binding and companies voluntarily choose to report based on these guidelines or not. Other providers of guidelines on sustainability reporting are the OECD Guidelines for Multinational Enterprises, The United Nations Global Compact (the Communication on Progress), and the International Organization for Standardization (ISO 26000, International Standard for social responsibility). The goal of such guidelines is to provide standardized sustainability reporting and improve the quality of the disclosed information to stakeholders. Some literature suggests that board gender diversity leads to higher social performance and greater understanding of consumer behavior (Peens & Taylor, 2017). Having a diverse board means increasing the communication and interaction with other companies (Liu et al., 2014; Reguera-Alvarado et al., 2015; Kilic & Kuzey, 2016). Thus having women on board, will improve the relationship between female customers and the company (Liu et al., 2014). It also signifies that the company promotes gender equality (Isidro & Sobral, 2015), hence improving the firm's image (Huse & Solberg, 2006; Kilic & Kuzey, 2016). However not so much attention has been given to how gender diversity on board can affect the social and environmental side of the corporation (Rao, 2016). Consequently, the following hypothesis was developed to cover the effect of women on board on social performance.

Hypothesis 5: *Women on board affect bank's social performance.*

5. RESEARCH DESIGN AND METHODOLOGY

To determine the relationship between corporate governance, women on board, and corporate performance, a quantitative method will be used. The annual reports and financial statements of the banks will be compiled from banks' websites and BDL publications.

5.1. Variables

This section provides a detailed description of the variables that will be used in the research. Variables are divided into three categories.

5.1.1. Dependent Variable

The research main topic is to assess the effect of gender diverse board on banks' performance; hence the dependent variable is bank's performance.

Banks' performance is divided into financial and social performance, thus two models will be tested, with the first model handling financial performance as dependent variable, and the second model handling social performance as dependent variable.

5.1.1.1. Financial Performance

In line with previous literature regarding women on board and financial performance, two proxies are used to asses financial performance: Return on assets (ROA) and return on equity (ROE) (Mirza et al., 2012; Lückerath-Rovers, 2013; Solakoglu & Demir, 2016; Willows & Van der Linde, 2016). Though many studies took into consideration Tobin's Q as a dependent variable, yet it was disregarded for this study due to the difficulty in getting the market value of the equity and the necessary information for its calculation.

ROA= Net Income/ Book Value of Assets

ROE is a financial measure that shows profit the company produces with respect to the capital invested. It provides insight about the efficiency and effectiveness of the company's policy in handling the invested capital. ROE is calculated by dividing the annual net income over carrying value of total equity.

ROE= Net Income/ Book Value of Equity

5.1.1.2. Social Performance

Similar to the available literature about measuring corporate social responsibility (Jizi et al., 2014; Habbash, 2016; Rao, 2016; Ali et al., 2017), the social performance of the firm will be measured using content analysis. Content analysis is used to inspect the CSR disclosures in various reports. It is a method to codify text in an objective manner depending on specific criteria (Weber, 1988). Using content analysis helps in determining the existence of certain concepts. The corporate social responsibility acts are measured by the extent of disclosure on the company's annual reports, and websites. A CSR disclosure checklist is used to measure the extent of CSR disclosures in the annual reports. The checklist is based on multiple similar studies (e.g. Khan et al., 2011; Rao, 2016; Habbash, 2016) and GRI guidelines (e.g. Everaert et al., 2009). A dichotomous procedure is applied, whereby each item on a checklist is granted a 1 scoring. Thus a bank will get 1 if an item from checklist is disclosed, and 0 otherwise (equally weighted). Following that, the sum of total scores for each bank will be divided by the total number of the checklist items to get the ratio of CSR disclosure by applying the following equation:

CSP=Total Number of Items Disclosed

5.1.1.3. Total Items in Checklist

Content analysis is common for qualitative studies and has been used in similar literature. It is considered as reliable and valid approach to measure the disclosure quantity and quality (Elzahar & Hussainey, 2012; Ali et al., 2017; Rao & Tilt, 2017; Krippendorff, 2018). In addition, content analysis ensures repeatability and valid references from data (Krippendorff, 2018).

5.1.2. Independent Variables

Since our main topic is linked to gender diverse board and its effect on corporate performance, the independent variable will be presence of women on board. It is also interesting to check if there is any effect of women in key/top management positions has any effect of the banks' performance. Thus another variable is added which is women in top management/key positions.

5.1.3. Control Variables

The research identified three control variables, which are firm size, profit, board size, and age. According to literature, firm size can be calculated as the natural logarithm of net sales (Adams & Ferreira, 2009; Marinova et al., 2016), or total assets for each firm (Erhardt et al., 2003). Banks are part of the service sector, and accordingly their main source of revenue is interest income. Thus for the purpose if this study, total assets will be proxy for the bank's size. Net income is used as a proxy for profit, and board size is the total number of board of directors members. With respect to age, most of the banks have been in business for more than 30 years, thus age will be neglected since it is almost common among most of banks.

5.2. Empirical Model

Since the study will focus on nine-years period of financial statements, thus panel data or longitudinal data is used. "Longitudinal data analysis represents a marriage of regression and time-series analysis"(Freese, 2004). The panel data allows the researcher to measure the changes that might happen over time across entities (Rao, 2016). The advantage of using longitudinal data is to "study dynamic relationships and to model the differences, or heterogeneity, among subjects" (Freese, 2004). In addition, longitudinal data decreases collinearity among the independent variables, provides more data to analyze, and increase the degree of freedom (Hsiao, 2014). Finally using longitudinal data take into consideration the endogenous variables that might be unobservable at one point data. "A longitudinal data design may yield more efficient estimators than estimators based on comparable amount of data from alternative design" (Freese, 2004). The linear model for this study is as follow:

$$Y = \alpha + \beta\ \text{Women\_B}_1 + \beta_2 \text{Women\_TM} + \beta_3\ \text{Bank\_Size} + \beta_4\ \text{Profit} + \beta_5\ \text{Board\_Size} + \lambda$$

The dependent variable is the corporate performance, while independent variables include women on board, and women in top management. Control variables are bank size, profit, and board size. Finally □□presents fixed years effect. To account for variations in longitudinal data, two modeling techniques are generally used: the Fixed Effect Model and the Random Effects Model. To choose which better represent the data, Hausman test was conducted, and the results showed the need to use fixed effect model. This is in line with other studies (e.g. Muttakin et al., 2015; Ibrahim & Hanefa, 2016; Yasser et al., 2017), who have used the fixed-effect regression in order to test the model's robustness for the panel data.

6. DATA FINDINGS

This paper mainly studies the effect of women on board on the Lebanese banking sector covering nine years period, from 2008 to 2016. According to BDL, Lebanon had 66 banks as at December 31, 2016. After extracting the financial data from the annual reports and BDL publication, it appears that several banks had missing data from 2008 to 2018, making it difficult to compare with other banks, thus those banks were excluded from the sample. Similarly new banks were formed and other banks were closed during this period, these banks were also excluded from the sample, thus the sample tested consisted of 41 banks.

6.1. Hypothesis Testing

6.1.1. Corporate Governance

In this study we structured CG-index to assess the strength of banks' CG based on the BDL and BCC CG guidelines that are adopted from the OECD principles. The CG-index that is structured is divided over six categories of CG including board of directors, risk, compliance, internal audit, compensation, and transparency and disclosure, covering 40 internal and external factors. We code each of the 40 factors either 1 or 0 depending on whether the factor is existent or not (equally weighted). Each bank is assessed as per the CG_Index. The banks that scored above 30 (have 30 items from the checklist available/found in their CG disclosures) are considered to have strong CG structure. The banks scoring below 20 are considered to have weak CG structure. The average CG_Index for the banks is 24.

CG_Index	24
Below 20	7
Between 20 and 29	21
30 and above	13

Table 1: Summary CG_index

According to Table 1, 17% of the banks tested or seven banks had CG index below 20, while twenty-one banks or 51% of the banks scored between 20 and 29, and 13 banks had CG_index of 30 and above. Those banks scoring 30 and above are considered to have strong CG structure. The highest CG_index was 35 for two banks. Based on the results above, only 7 banks of the 41 banks tested have weak CG structure, this indicates that the Lebanese banking sector had made serious efforts to implement sound CG structure within its structure. To better understand how CG is structured in the Lebanese banks, and how banks with different sizes have implemented CG code. Banks were divided into 3 groups based on their assets. The first group represents the first tier and consists of the top 10 banks; the second group is between 11 and 20 top banks; and the third group above 20.

Tier	CG_index	WB	ROA	ROE
Tier 1	27.9	0.80	0.010	0.08
Tier 2	24.7	0.70	0.010	0.10
Tier 3	19.7	0.50	0.007	0.08

Table 2: CG index, Women on Board, and ROA as per Tier

Table 2 shows that tier 1 banks, i.e. banks with high assets ranking, scored more on CG index (mean) than smaller banks tier 2 with 24.7 and tier 3 with 19.7 CG index (mean). This proves hypothesis 1 that banks with higher ranking have strong corporate governance. In addition, tier 1 banks had on average more women on board (0.8) than tier 2 (0.7) and tier 3 (0.3) This proves hypothesis 2 that strong CG affects board gender composition. With respect to the financial performance, the three tiers had almost the same ROA and ROE (means), thus we reject hypothesis 3 stating the strong CG affects banks' financial performance. To check the robustness of the results presented in Table 2, several analysis of variance (ANOVA) have been conducted to check the mean differences among the three groups. As Table 3 shows, the p value is significant at 1% level, which leads to the rejection of the null hypothesis that there is no difference, hence there is a difference in the CG index mean among the three groups. With respect to Tiers and women on board the results are presented in Table 4. Even though the mean is different among the three groups as per Table 2, yet the difference is very small thus showing no significance as per the ANOVA. Similarly, Table 5 and Table 6 shows no significant p-value, thus proving that there is no difference among the mean of the 3 groups.

Variables	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tiers	2	525.8	262.91	3.832	0.033*
Residuals	38	2058.2	68.61		

Table 3: ANOVA for CG_Index and Banks' rankings

Variables	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tiers	2	0.403	0.2013	0.319	0.729
Residuals	38	18.931	0.631		

Table 4 :ANOVA for WB and Banks' rankings

Variables	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tiers	2	0.0000728	0.00003641	1.207	0.313
Residuals	38	0.0009052	0.00003017		

Table 5: ANOVA for ROA and Banks' rankings

Variables	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tiers	2	0.00248	0.001239	0.285	0.754
Residuals	38	0.13041	0.004347		

Table 6: ANOVA for ROE and Banks' rankings

6.1.2. Financial Performance

Regarding women on the board and financial performance, the hypothesis suggests that gender diversity in the boardroom affect the financial performance. This hypothesis was predicted based on studies completed in the developing countries indicating a link between women on board to the financial performance of the company. With respect to financial performance as measured by ROA, the results show significant negative relationship between women on board and ROA. Thus, Hypothesis 4a is accepted, as women on board have negative effect on the financial performance. The results are consistent with previous studies conducted in developed countries such as Eklund et al. (2009), Adams and Ferreira (2009), Mirza et al. (2012). With respect to financial performance as measured by ROE, the results shows no significant relationship between women on board and ROE. The results of the panel data analysis on the Lebanese banking sector do not support the prediction indicating relationship with ROE. Thus, Hypothesis 4b is rejected, as women on board do not affect the financial performance of the bank as measured by ROE. These results are consistent with Randøy et al. (2006), Rose (2007), Francoeur et al. (2008). Marinova et al. (2016), and Peens and Taylor (2017) studies that showed no influence of women on board to corporate financial performance. Hypothesis 4 was grounded on the recent studies highlighting the role of women in the boardroom. The studies showed that board diversity; specifically gender improves the image of the company and positively affects performance (Solakoglu & Demir, 2016). According to various studies, diverse boards tend to cover broader perspectives and will possibly evaluate more alternatives, as they understand the market place better, i.e. better decision-making process. Having different opinions intensifies the debate and open broader space for negotiating and accepting new ideas to eventually reaching different segments (Peens & Taylor, 2017). The conclusions reached are contradictory to some previous studies that show evidence of having women on board has positive effect on financial performance such as Liu et al., 2014; Ntim, 2015; Chen et al., 2016; Yasser et al., 2017; and Galbreath, 2018. It is interesting to note that women in top management did not have any significant effect on the banks performance, nor the interaction term between women on board and women in top management. This shows that women in top management do not affect the firm financial performance as measured by both ROA and ROE.

6.1.3. Social Performance

With respect to women on the board and social performance, the regression results show that presence of women on board have significant effect on the corporate social performance, as a result accepting hypothesis 5. This hypothesis was predicted based on studies completed in the developing countries indicating a link between women on board to the social performance of the company. Having a diverse board means increasing the communication and interaction with other companies (Liu et al., 2014; Reguera-Alvarado et al., 2015; Kilic & Kuzey, 2016). Thus having women on board will improve the relationship between female as customers and the company (Liu et al., 2014). It also signifies that the company promotes gender equality (Isidro & Sobral, 2015), which improves the firm's image (Huse & Solberg, 2006; Kilic & Kuzey, 2016). The results of the panel data analysis on the Lebanese banking sector support the prediction indicating positive relationship with social performance. These results are consistent with previous studies conducted such Bear et al. (2011), Rao and Tilt (2016), Kyaw et al. (2017) studies that showed positive association between women on board to corporate social performance. The conclusions reached are contradictory to some previous studies that show no evidence of having women on board affecting social performance such as Coffey and Wang (1998), and Khan (2010). It is worth mentioning that women on top management shows significant positive relationship to social performance at 5% significance level. This shows that not only women on board, but also women in managerial positions can still affect the social performance in the Lebanese bank. Similarly, the interaction term (women on board: women in top management) is significant at 5% level, which indicates that both have positive effect on the corporate social performance of the banks.

7. CONCLUSION

This study investigates the effect of gender diversity on the financial and social level of banks by examining mainly the information reported by Banks in their annual reports for the period of 2008-2016. Preliminary analysis of the data shows that women on board have increased significantly over the years, however women representation is still considered minimal. The boards tend to have very little female representation varying from 0 to 3 women on board as a maximum. Interesting to note that 15 banks from the 19 banks with gender diverse board have only one female, while only one bank had 3 females. It is argued that such a small number of female on boards makes it hard for women to deliver their voices and be heard. Five hypotheses were tested to investigate the relationship between (H1) CG and banks' ranking, (H2) CG and women on board, (H3) CG and financial performance, (H4) women on board and corporate financial performance, (H5) women on board and social performance. Three out of the 5 hypotheses had significant relationship. The results show that banks with higher ranking have stronger CG structure. This indicates that banks with higher ranking seem to be more aware of the importance of having effective corporate governance. Surprisingly, the results show that women on board have negative effect on the bank's ROA. Unlike many studies linking women on board to positive financial performance, this study showed contradicting results. While women on board and ROA had negative association, women on board and ROE regression showed no significant relationship. The study also reveals that women on board have significant positive effect on the corporate social performance as per the regression analysis completed. There are some important implications of these findings. It was noted that strong CG is not attributed to better financial performance, hence the proof that the bank system in Lebanon is highly regulated and does not depend on governance standards. Moreover, banks wishing to increase their social performance are advised to appoint more women on board and encourage women to apply for these positions through promoting gender equality culture. This paper adds to the literature in several ways. First, the study is not limited to banks' financial performance but goes further to cover the social performance. Second, the paper extends the topic for prior studies handling traditional company structure either women on board or women in top management, as this study shows the effect of both factors on the corporate performance. The study has also created CG index for which banks could be ranked according to the attributes listed. Finally, by conducting a longitudinal study, the paper contributes to the methodological strength of the existing literature in the field of corporate governance.

In conclusion, while this study contributes to the literature by providing preliminary assessment of the Lebanese banking sector and women on board and top management, further research should be done to explore the reason for the negative impact women on board have on the ROA financial performance and the no effect on ROE. The surprising results with respect to women on board and financial performance highlight the need to better understand the industry and banks' structure. This could be attributed to the "tokenism" status of female representation and concluding that the negative/no relationship is not directly related to women on board. Jesmin et al., (2012) study showed that there is a U-shape relationship between women on board and corporate performance. According to the study, women on board negatively affect the firm performance in the initial years but after an increase in the number of women on board, the results are converted to positive performance. This could explain the results attained from the regression analysis with respect to ROA and women on board. Finally, as an extension to this study, and to better understand the results, interviews with board members could be helpful in better analyzing the conclusions. On the other hand, additional research handling board diversity in general can be addressed to explore their effect on the banks' performance.

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ROLE OF GREEN FINANCE IN ECONOMIC DEVELOPMENT

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ABSTRACT
Sustainable development is becoming increasingly crucial as the economy battles to maintain environmental health. Green funding was designed to support economic health. Green Finance is financial help for green growth. The fundamental purpose of the research is to determine economic success following the implementation of the concept of Green Finance. Today's ecosphere values sustainability since it is vital to economic security. This study focuses on the economic developments and changes that occur as a result of green finance deployment. The research also tries to identify the reason and relevance of providing green funds. The study looks at the various types of investments made by the financial industry and other investing businesses in economic growth to reduce carbon emissions. According to the findings of the literature review, green financing has a favourable influence on economic growth. Green financing has a beneficial influence on environmental quality at the national level, meaning it minimises or limits environmental damage. Then, governments should employ fiscal policies to encourage the development of green finance, and use fiscal financing to direct credit funds and social capital into green investment, green credit, and green securities
Keywords: *Green finance, economic development, sustainable development, banking*

1. INTRODUCTION

As the economy struggles to keep the environment healthy, sustainable development is becoming increasingly important. To sustain economic health, the notion of green financing was established. Green Finance is financial assistance for green growth, but lacks a widely agreed term that may be defined. Green finance is defined differently by different theorists. Some authors undertook studies to discover the definitions of Green Finance provided by various theorists in their research (Linderberg, 2014). According to International Development Finance Club (IDFC) members, green finance is a broader term that can refer to financial investment that flows into sustainable development projects and environmental products, as well as policies that support the concept of sustainability (Höhne et al, 2012). Green finance was described in a distinct context in their work South-Originating Green Finance- Green financing is a word for investment in the creation of green products, often known as green investment. They also claim that green finance is a broader word that encompasses a broader range of investments (Zadek and Flynn, 2013). Price Waterhouse Coopers described the phrase "green finance" from the perspective of a banker (PWC). Green finance may be characterised as both a financial product and a service in the banking industry. It fosters economic development by making environmentally responsible investments, ensuring low carbon emissions, and promoting enterprises that reduce economic risk (Price Waterhouse Coopers Consultants, PWC, 2013). Population is increasing rapidly along with population living standard raise and climate changes, etc., are causing a pressure on the environment. It is very much important in finding solutions to protect the environment from these causes. Then, the aim is to build up a sustainable environment. The concept of green finance which is also known as green banking is adopted in the areas that are selected and in a prescribed manner so that it reduces the external carbon emission and internal carbon footprint (Meena, 2013). Climate change is the most serious challenge confronting the economy. There are several explanations for this climate shift. Human activity is one of the causes of this climate shift.

Banks are socially responsible corporate citizens, and as such, they play an important role in furthering the government's aim of sustainable development through lowering carbon emissions (Meena, 2013). This study clearly defines the role of the banking industry; banking sectors fund all of the key business sectors that contribute to the growth of the economy. Top industrial items such as cement, chemicals, fertilisers, steel, and many more emit carbon, and these firms are supported by financial sectors (Meena, 2013). Thus, the bank serves as a mediator between businesses and the environment, and the bank can help to tackle the problem of sustainability by taking steps to reduce carbon emissions. Banks can assist reduce carbon emissions and manage the environment by financing pollution-reduction initiatives and green technology. The financial industry, which invests in sustainability, contributes to carbon emissions through the use of energy such as air conditioning, lighting, and other electronic equipment, in addition to excessive paper waste, which is not promoted (Meena, 2013). Even so, banks are not regarded a polluting business; similarly, there are other firms that raise carbon emissions in a little way but have an influence on the economy. There are several economic benefits to green banking. All businesses may help to keep the quantity of carbon emissions to the environment under control by reducing paper waste and minimising needless energy consumption, for example. The governments of many nations are pushing the notion of green financing because, by 2030, all countries expect to have a more developed economy with lower carbon emissions. The stock market has an influence on sustainability as well. Companies that develop more environmentally friendly products will have a prominent position in the stock market in the near future. The notion of green financing must be created since it will stimulate the creation of new initiatives that support green development and goods that are less destructive to the environment. Then, the primary goal of the research is to determine the economic progress following the adoption of the concept of Green Finance. Sustainability is valued in today's ecosphere since it is critical to economic protection. This research focuses on the economic developments and changes that occur following the deployment of green financing. The study also seeks to determine the rationale and significance of giving green funding. The research examines the various forms of investments made by the financial sector and other investing firms in the growth of the economy to prevent carbon emissions. The role performed by all enterprises, from those with minor operations to those with massive activities, is explored.

2. LITERATURE REVIEW

Climate change is one of the most serious environmental threats to the economy (Sachs, Woo, Yoshino and Taghizadeh-Hesary, 2019). To monitor climate change in the economy and accomplish the Sustainable Development Goals (SDG), innovative finance mechanisms and implementation must be developed (Saab and Sadik, 2018). A significant investment is necessary to recover the economy from climate changes and lead to a sustainable environment. The significance of green finance is well addressed in the literature, since one of the primary motivations for green funding is to balance climatic shifts. Banks act as a bridge between environmental protection and economic development, promoting environmental sustainability and societal development investments (Meena, 2013). Green funding is accomplished through many means such as green banking, green bonds, village funds, and so on, with green banking and bonds playing an essential part in the development of clean energy (Sachs, Woo, Yoshino and Taghizadeh-Hesary, 2019). All of these advancements are only possible if adequate financial assistance is supplied. Financial sectors, notably banks, play a significant role in allocating resources toward the development of a sustainable and green economy, effectively halting funding for activities that hurt the environment (Volz, 2017). To transition economies to the concept of sustainable development, investment policies must shift away from greenhouse gas, fossil fuel, and natural resource intensive industries and toward more resource efficient technologies and business models (Volz, 2018).

The need for green finance has grown significantly in recent years, and the notion of providing green financing currently plays an important role in encouraging sustainable development and growing the financial system (Mua, 2017). Governments have established a number of programmes aimed at lowering carbon emissions and promoting sustainable development. Governments have also launched green markets to promote sustainable development, with the markets for green finance products and environmental goods and services being the best example of such a green market (Soundarrajan and Vivek, 2016). The notion of green financing has also had an effect on the commercial industry. Green funding is critical in green growth since commercial possibilities can be covered up by better servicing the environment (Mua, 2017). Following the entrance of green financing into the financial system, there is now access to new genuine investment in fossil and environmentally friendly companies (Glomsrrd and Wei, 2016). There are three categories on global finance: non-fossil finance, non-coal finance, and unconstrained finance (Glomsrrd and Wei, 2016). By improving market practise, harnessing the public balance sheet, directing money through policy, supporting cultural transformation, and upgrading governance architecture, the financial system may be connected to the notion of sustainable development (Mua, 2017). By using these strategies, the financial system will be able to exert more control over the environment. A financial system is made up of institutions and marketplaces that operate as an intermediary or as a location to mobilise funds for the goal of investment and also provide services such as payment systems for the financing of various enterprises' activities (Mua, 2017). According to an IFC research, the provision of regulatory guidelines is crucial in order to encourage local banks to embrace sustainable banking practises, and in order to fulfil the rising demand, banking authorities have begun collaborating with one another (Sustainable Banking Network, 2020). The banking industry emits carbon dioxide as well. Small industries, in addition to the banking industry, may emit carbon. Despite advances in green finance, only a tiny percentage of institutions are designated as green according to national criteria (Green Finance Synthesis Report, 2016). Banks can use a variety of ways to reduce their use of environmentally harmful items. They can open Online Savings Accounts, make statements available online, utilise Direct Deposit without requiring deposit slips, pay bills online, reward debit and credit cards for usage as clients use them regularly, and use net banking facilities as some of the approaches to implement Green banking (Meena, 2013). To some extent, this strategy will aid in the reduction of environmental pollutants. The amount of carbon emissions that the economy must cut to lower the danger of global warming above 2 degrees Celsius to 50% has been calculated and published as the global carbon budget (Glomsrrd and Wei, 2016). Many measures are to be followed by firms to mitigate global warming, including an investment policy to limit carbon emissions (Glomsrrd and Wei, 2016). According to the analysis, through 2030, at least 5-7 trillion USD would be required each year to fulfil the global sustainable development targets. The economy should be developed by the end of 2030, and carbon emissions should be decreased. An investment of 2.5 trillion USD is necessary in developing nations alone for environmental development; also, the goal is to expand the economy in ways that do not hurt the environment (Saab and Sadik, 2018).

2.1. Green Finance

The advent of the "equator principle" aided the green revolution (Xu et al., 2020). Since then, the green financial system based on the "equator principle" has gained global traction. The notion of "Green Finance" garnered widespread attention at the G20 meeting in 2016. (Vittorio, 2016). In actuality, the United States implemented the "energy tax legislation" as early as the 1980s, which gives tax breaks to enterprises who generate renewable energy. Green finance is commonly defined as financial investment in environmentally friendly projects, sustainable development efforts, and policies aimed at establishing a sustainable economy (Höhne et al., 2012).

Green finance is also described as a component of the financial system that deals with unique green investments, such as financial instruments for green investments (Lindenberg, 2014). Green finance, according to an International Finance Corporation (IFC) report, is defined as the funding of investments that generate environmental advantages. Green finance, which encompasses financial solutions for large-scale environmental goals, plays an essential role at the corporate level in encouraging ecologically friendly investments (Falcone and Sica, 2019). Green financial instruments are classified into three categories: retail finance (green credit), asset finance (green subsidy and carbon fund), and corporate finance (green investment and green bond) (Soundarrajan and Vivek, 2016). Green credit development promotes financial development by reducing environmental weaknesses in financial development (Xu and Li, 2020). That is, green credit may affect business financing constraints, hence influencing firm economic performance. Green investment is defined as lowering pollution without significantly affecting nonenergy production and consumption (Eyraud, Clements and Wane, 2013). As a result, it may have the goal of either lowering expenses or raising revenues (Antonietti and Marzucchi, 2014). Green subsidies have more economic efficiency in tackling external environmental issues than market-based techniques (Dröge and Schröder, 2005). Government-enacted green subsidy policies incentivise enterprises to create green production techniques, causing them to spend more in green innovation and achieve better environmental outcomes (Xie, Zhu and Wang, 2019). Furthermore, in order to have a favourable environmental performance, businesses might issue a green bond to generate funds to finance their environmentally friendly projects (Zhou, Tang and Zhang, 2020). This is because the issuance of a green bond may attract more investors, resulting in more stock market movements.

2.2. Green finance's influence on economic growth

The positive relationship between financial development and economic growth has long been established (King and Levine 1993; Demetriades and Hussein 1996; Beck et al. 2000), and this relationship appears to exist in developed (Nieuwerburgh et al. 2006; Marques et al. 2013), arising, and developing economies (Bittencourt 2012; Uddin et al. 2013). As the financial market matures, so does the study on this topic. Scholars, for example, have investigated several transmission channels of financial development to support economic growth (Bucci et al. 2019; Gazdar et al. 2019), discovering that different financial indicators exhibit heterogeneity in boosting economic growth (Adu et al. 2013; Wang et al. 2019a), and investigated the influence of financial regulatory laws on the connection between financial development and growth (Bernier and Plouffe 2019). Green finance is a new form of financial instrument designed to tackle environmental concerns, and it represents financial advancement in the field of environmental conservation (Wang et al. 2019b). Green finance shares many similarities with regular finance. As a result, the development of green finance, like financial development, may boost economic growth. However, there are few connected studies due to the short development time of green finance. Green investment in renewable resources has a double threshold impact on green economy development, according to He et al. (2019b); in the long term, green investment in renewables can effectively support green economy growth. Pradhan et al. (2018) proposed that the government should support green finance investment in clean energy fields such as natural gas, which also contribute to environmental protection and economic growth, after studying the relationship between oil prices, financial development, and economic growth in FATF (Financial Action Task Force) countries. Following the 2008 financial crisis, financial markets suffered increased risk and uncertainty (Neaime 2012; Assaf 2016). A growing number of studies have discovered that excessive financial development may stifle economic progress (Hye and Islam 2013; Ibrahim and Alagidede 2018).

2.3. Green finance's influence on environmental quality

In 2015, 178 countries joined the Paris Agreement to address global climate change challenges. According to International Energy Agency figures from 2014, it will take 53 trillion dollars by 2035 to sustain the Paris Agreement's 2 °C temperature goal. At the same time, the global stock market's trading volume reached 68.212 trillion USD in 2018. Obviously, using financial capital is an excellent method to close this massive financing gap (Clark et al. 2018). According to Galaz et al. (2015) and Scholtens (2017), the rapid development of financial innovation has a significant effect on various aspects of humankind, but the impact on the ecological environment is modest, and thus there is a significant room to promote the ecological environment with the help of financial funds (Chang 2015; Mahdi 2015; Nasreen et al. 2017). Dogan and Seker’s (2016) research found that financial development can effectively reduce domestic carbon dioxide emissions based on the data of 23 countries with the largest use of renewable energy. Guo et al. (2019) further refined the financial indicators and found that the impact of financial scale and financial efficiency on carbon dioxide emissions is heterogeneous. In addition, it was also found that financial development can reduce emissions of various environmental indicators such as industrial solid waste (Zhao et al. 2019), industrial wastewater (Yin et al. 2019), and nitrogen oxides (Nassani et al. 2017). Therefore, the significance of developing green finance is to strengthen the characteristics of finance that can improve environmental quality. Furthermore, scholars have investigated more fundamental problems of green finance in trying to promote protection of the environment, such as the transmission path of green finance to the environment (Wang and Zhi 2016), how to improve private green capital participation in environmental protection projects (Ruiz et al. 2016; Taghizadeh, Hesary, and Yoshino 2019), and the role of the government in the development of green finance (Owen et al. 2018). The financial business itself helps to enhance environmental quality. This is due to the financial industry's ability to provide financial support for eco-friendly enterprises and projects on the one hand, and financial development's ability to promote the major upgrades of industrial structure, which in turn plays a crucial role in lowering energy consumption and carbon emission levels on the other. Poberezhna (2018) investigated the benefits of the green economy and blockchain in addressing the global water shortage problem, thereby lowering the risk of environmental degradation. Green bonds, according to Gianfrate and Peri (2019), are one of the major strategies for mobilising financial resources to meet the Paris Agreement's carbon reduction commitments. According to Glomsrd and Wei (2018), if green bonds are implemented properly, 4.7 Gt of carbon dioxide emissions may be saved by 2030, while the share of non-fossil energy generation would grow from 42 to 46% as a result of green financing development. Green finance, in reality, has no direct impact on the environment, but it does give assistance for ecologically friendly businesses and initiatives, therefore increasing environmental quality. For example, the concept of green credit has run through the banks' loan approval process, and thus the funding capacity of high-pollution businesses has decreased dramatically (Liu and Shen 2011; Liu et al. 2017, 2019); issuing green bonds is advantageous for stockholders, and thus it will encourage companies to enter into green-related fields (Tang and Zhang 2018); green projects that focus on sustainable development can bring more money than traditional projects (Tang and Zhang 2018). Positive green finance policies implemented by the government may promote investments in the sector of renewable energy (Romano et al. 2017). However, certain researchers' perspectives differ from the norm. For example, He et al. (2019a) discovered that the development of green financing has a negative influence on bank loan issuance, which restricts the efficiency of renewable energy investment and hence has a negative effect on environmental quality. Pacca et al. (2020) discovered that, in the short-term following the financial crisis, the degree of financial development declined dramatically, but so did emissions of air pollutants, indicating that financial regression has instead supported environmental improvement.

It can be observed that present research largely indicates that the growth of green finance will encourage capital to flow into environmentally friendly firms and initiatives, but it does not clearly establish a direct link between green finance and changes in environmental quality.

2.4. Green finance's influence on economic growth and environmental quality

Economic sustainable development emphasises environmental conservation while fostering economic prosperity (Campbell 1996; Grodach 2011). The purpose of green finance development is to create financial tools for long-term economic growth (Zhang et al. 2019). As a result, the development of green finance is practicable only when it can simultaneously achieve the aims of economic development and environmental quality improvement. According to Simon et al. (2012), the stove replacement programme may reach a win-win scenario for both the economy and the environment, and its development requires the backing of green financial tools like as carbon financing. Brauneis et al. (2013) computed the optimal carbon dioxide price floor levels and growth rates in carbon financing transactions using Monte-Carlo simulation and dynamic programming, which assisted in achieving both economic growth and environmental quality improvement. Green finance, as a financing tool, is used in the preceding research to support enterprises or projects that can achieve a win-win situation between the economy and the environment, but there is little literature on the direct effect of green finance on economic growth and environmental quality. In 1991, the inverse U-shaped association between per capita GDP and environmental deterioration was discovered. Grossman and Krueger (1991) investigated the link between economic growth and environmental pollution and discovered that as per capita income climbed, so did the concentration of sulphur dioxide and dust in the air until it hit a tipping point and began to fall. In addition, Shafik and Bandyopadhyay (1992) discovered an inverted U-shaped association between economic progress and pollution. The EKC was described by Panayotou (1993) as the inverse U-shaped connection between per capita GDP and an environmental pollution indicator. Following that, academics utilised global data to validate the presence of the EKC in many nations. For example, Apergis and Payne (2009) validated the EKC in the United States, Jalil and Mahmud (2009) and Riti et al. (2017) validated it in China, and Halicioglu (2009), Seker et al. (2015), Ozatac et al. (2017) validated it in Turkey (2018). Researchers have also investigated the inverted U-shaped association between various environmental variables and per capita income. Song et al. (2008) observed that the form of the EKC varies depending on the type of industrial waste emitted. Wang et al. (2017) investigated the EKCs of several greenhouse gases, whereas AlMulali et al. (2015), Dogan and Seker (2016), and Sinha and Shahbaz (2018) demonstrated the inverted U-shaped link between per capita GDP and carbon dioxide emissions.

3. GREEN FINANCE IN ECONOMIC DEVELOPMENT: THE CASE OF MEXICAN COMPANIES

The development of green finance is a new topic, in which Mexico is beginning to venture, such is the case of the Sustainable Price and Quotation Index, which is presented as a financing alternative for the development of green practices (Vázquez and Carrillo, 2017). Although it is a new topic, Mexico has begun to interfere in the implementation of green growth policies. In this way, it is as "the Government of the Republic has assumed the firm commitment to promote the transition towards a green economy in order to make economic development compatible" (National Institute of Ecology and Climate Change, INECC, 2014). Meanwhile, the Price and Quotation Index is an indicator that represents the behavior of the stock market, being the main stock market index of the Mexican Stock Exchange (BMV). As part of the search for development aimed at green growth, Mexico introduced the Sustainable Price and Quotation Index (GI, MX) in December 2011, generated by the trend of investors seeking to invest their resources in companies committed to sustainability.

The companies that are listed within the GI, MX, consider a list of companies from various sectors that excel in the issue of sustainability. To enter the GI, MX, companies are evaluated based on 3 items: 1. Management and use of natural resources (Environment); 2. Social Responsibility with its main interest groups (employees, suppliers, customers and the community in which they work); and 3. Corporate Governance. The BMV develops its own methodology to evaluate companies that wish to enter this index, being supported by two independent rating agencies. The Universidad Anáhuac del Sur and the company Ecovalores are the qualifiers in charge of evaluating the three traits necessary to enter the GI, MX. For the evaluation of the three pillars, the rating agencies take into consideration the information that the companies (issuers) publish on their internet sites (Vázquez and Carrillo, 2017). The evaluation analyzes the information available both on the internet site and in the station's public reports. The evaluation methodology depends on each rating agency, which are independent from one another, as well as on the Mexican Stock Exchange. In the event that there is a change in the methodology, it will be made known to the issuing companies so that they can make the necessary changes. Depending on the sector in which the issuer is located, the relevance of each of the three items will be (Vázquez and Carrillo, 2017). The division is made taking into account the sector in which the industry is located and, in turn, the impact that this sector has on the environment. The sectors that are within the High Impact Level are the following: Airports, agriculture, water, fast food chains, food, beverages and tobacco, construction, engineering development, housing developers, road distribution and logistics, gas and oils, power generators, vehicle manufacturing, construction materials, mining and metals, paper, chemicals and pharmaceuticals, air transport. Within the Medium Impact are sectors such as: energy and fuel distribution, electronic and electrical equipment, leisure and recreation, hospitality, printing and print media, research and development, manufacturing, machinery and engineering, mass media, port, support services, supermarkets, department stores and non-basic consumer goods, information technology, telecommunications, and public transportation. Finally, in the Low Impact Level are the following sectors: Surety companies, leasing companies, insurance companies, banks, real estate and brokerage firms (Vázquez and Carrillo, 2017). The GI, MX has had a favorable acceptance by investors along with the issuing companies, since during the period from February 1, 2014 to January 31, 2015, a total of 28 companies were listed and currently 30 companies are listed. However, this small group represents 21% of the total number of companies listed within the GI, MX out of a total of 143 listed on the stock market. In the long term, a company's forays into sustainability actions can be reflected in benefits in the future, such as a better brand reputation, high competitiveness within its sector, greater innovation and development.

4. CONCLUSION

According to the findings of the literature review, green financing has a favourable influence on economic growth. Green financing has a beneficial influence on environmental quality at the national level, meaning it minimises or limits environmental damage. Taking into account the case analysed and the examples researched by the literature, it is feasible to conclude that green financing can have a favourable influence on national economic growth.Taking the above conclusions into consideration, governments should employ fiscal policies to encourage the development of green finance, and use fiscal financing to direct credit funds and social capital into green investment, green credit, and green securities. Furthermore, governments should strengthen the green finance system, prioritise green operations in approvals procedures, and streamline the application process for green, ecological, and low-carbon sectors. Finally, governments are encouraged to provide legislative support for green financial development in impoverished regions, decrease the issuance and trading thresholds for green bonds and green securities, and prioritise initial public offerings of green idea enterprises such as new energy.

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MAIN CHALLENGES AND OPPORTUNITIES ON THE GLOBAL TOURISM MARKET

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ABSTRACT

When planning and analysing the profitability of investments in tourism it is extremely important to pay attention to the business' economic environment, the influences on it and international tourism movement. Generally speaking, tourism is susceptible to external impacts, but is also very resilient when a longer period and the total international tourism movement, which is constantly in a positive growth trend, are considered. Since investments in tourism are long term investments, it is very important to understand the movement trends which, in the moment investments are done, have to be considered as an important element having an impact on the success of a certain investment. Moreover, when estimating the total economic impact tourism has on the economy of a country, the direct, indirect and induced effect has to be taken into consideration. Besides the economic environment where business is run, an important role in the definition and creation of the tourist product, as well as reaction to the challenges and opportunities occurring on the global tourism market, is played by hotel companies and tour operators. Tourist destinations are primarily under the influence of comparative advantages, while hotel companies and tour operators are those that create competitive advantages of a tourist destination. In this sense, the responsibility of a hotel company for the development of a country's tourism is much higher than they themselves are due to their significant impact on the overall development of a tourist destination.

Keywords: *challenges in tourism, international tourism movements, hotel companies, tour operators*

1. INTRODUCTION

According to UNWTO (United Nations World Tourism Organisation, 2021), tourism and travelling are the world's most powerful industries with the fastest development and growth, which achieve more than 10% of the global gross domestic product and employ one out of 11 employees in the world. It has been the sixth year in a row that the travel and tourism sectors have a faster growth than the global economy (2.5%). Moreover, the direct growth of the tourist GDP is higher than the growth of financial and business services, retail, distribution and transport. The travel and tourism sectors can continue their growth in the long run due to the impact of investments and under the assumption that those investments are directed to a socially responsible and sustainable growth. It is therefore extremely important to determine the developmental tourism policy through which the benefit obtained by tourism is equally distributed among stakeholders with the aim of creating an environment which would be stimulating for the development of business and staff, all with the purpose of realising the full tourism potential. Aiming at a better understanding of tourism and the role the hotel industry plays in it, it is important to understand the characteristics of the tourist market – the tourist supply and demand, as well as consumptions and trends. The tourist supply system consists of natural and social attractions linked to the environment which is the basic resource of tourism, as well as various entities on the market which are necessary in order to create the relationship between the tourist supply and demand. According to Lumsdon (1997), the catering and hotel industry have a central role in tourism because they ensure accommodation, food and beverage, i.e. enable tourists to temporarily reside in the destination. They are the base for the development of tourism because without an adequate accommodation in the destination, it is not possible to develop other touristic activities such as attractions, recreational activities, trade, mediation in tourism, transportation, etc. Moreover, in planning and analysing the cost effectiveness of tourism Lesser (1993) claims that it is of utmost importance to think about the economic environment in which business is done, impacts and international tourism movement. Tourism is, generally speaking, susceptible to external influences, but is at the same time resilient in the long run and when overall international tourism movement, which are constantly in a positive growth trend, are considered (Hayes, 2004). Since investments in tourism are long-term investments, it is important to understand movement trends, and it should be done in the moment investments start since they are an important element influencing the success of a certain investment (Harper, 2014).

2. KEY TRENDS AND PERSPECTIVES IN INTERNATIONAL TOURISM

According to the World Tourism Organisation (WTO, 2020), despite occasional crisis, it can be said that in the last 60 years tourism has been the fastest growing economic activity in the world, and it is especially true for new destinations of the Middle East, Africa, Asia and the Pacific area. Europe is still the most significant receptive macro region of the world which has attracted 50.7% of the total incoming tourism although, due to the maturity of the leading European destinations, it has a slower growth when compared to other regions.

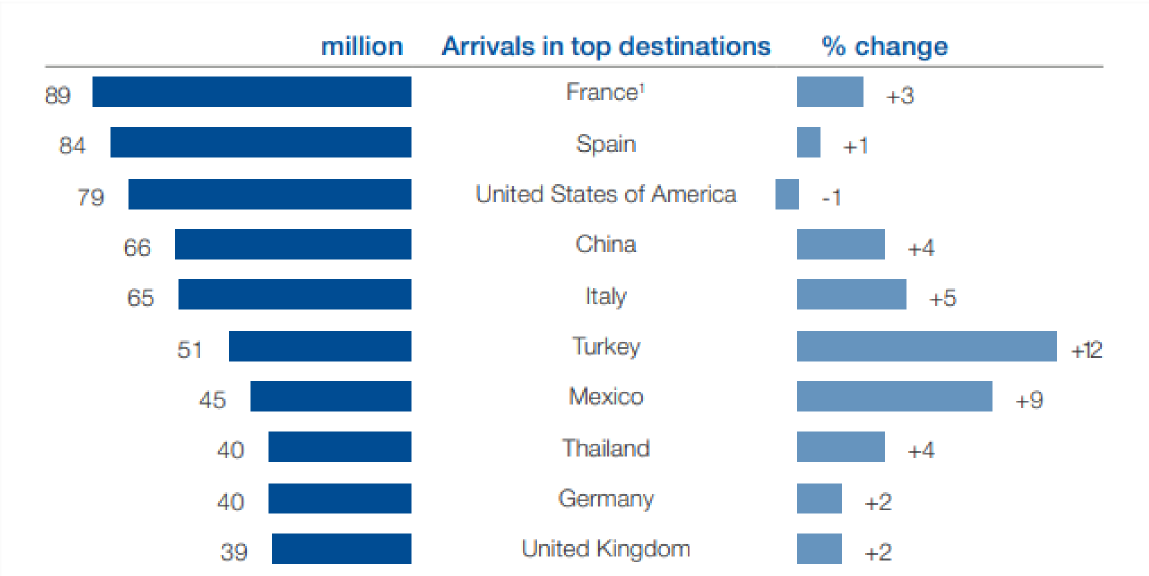

Chart 1: Top 10 destinations by international tourist arrivals, 2019
(Source: adjusted from UNWTO (International Tourism Highlights, 2020 Edition))

According to WTO (2020), in the period between 2010 and 2030 the number of international tourist arrivals in the world is expected to grow by 3.3% on average. The growth rate will gradually slow down; at the beginning of the period it will be 3.8%, while at the end it will amount to 2.9%. When considering absolute values, international tourist arrivals will increase by 43 million a year.

Along with the projected growth rate, international tourist arrivals in the world are expected to grow to the level of 1.4 billion in 2020 and 1.8 billion in 2030.

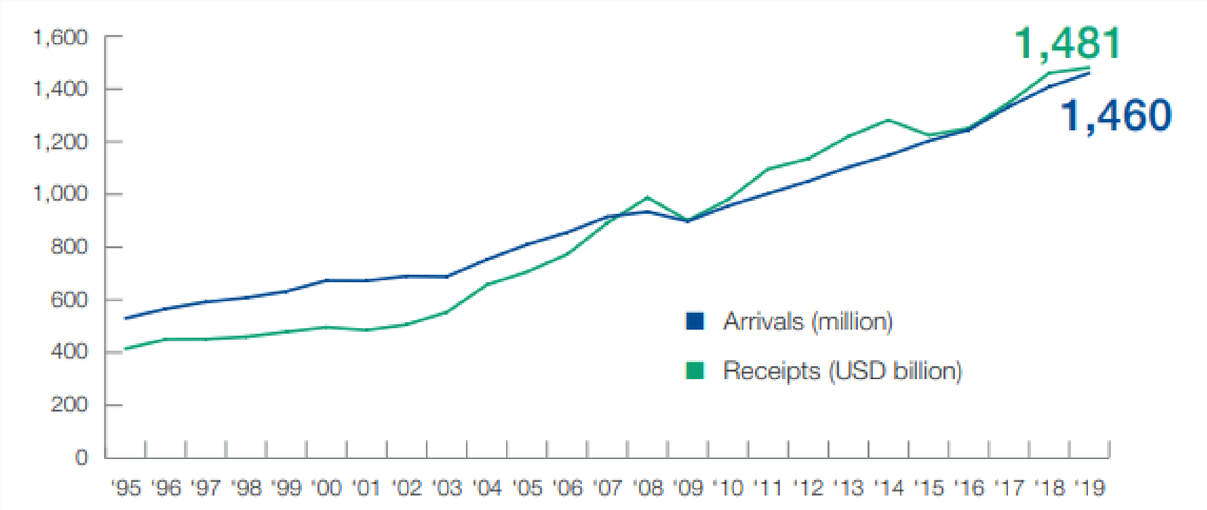

Chart 2: International tourist arrivals (million) and tourism receipts (USD billion)
(Source: adjusted from UNWTO (International Tourism Highlights, 2020 Edition))

Tourism is a key economic sector in many advanced and emerging economies:

- Over the past decades, tourism has experienced continued expansion and diversification to become one of the largest and fastest-growing economic sectors in the world.
- Growth in tourism was driven by a relatively strong global economy, growing middle classes and rapid urbanization in emerging economies, affordable travel and visa facilitation, as well as technological advances and new business models.
- Tourism, consisting of both inbound and domestic tourism represents a major part of gross domestic product for many economies around the world. This proportion is largest in Macao (China) where tourism accounts for 48% of GDP.
- In Jordan, Spain, Croatia and Mauritius, tourism accounts for 10% or more of those countries' GDP. In France, the world's top tourism destination, tourism represents 7% of GDP.
- Tourism also generates millions of direct and indirect jobs, with a high share of women and young people.
- Most tourism enterprises (around 80%) are micro, small and medium sized enterprises (MSMEs) which employ a high share of women and young people.
- Women make up 54% of the tourism workforce (as compared to 39% in the overall economy).

Chart following on the next page

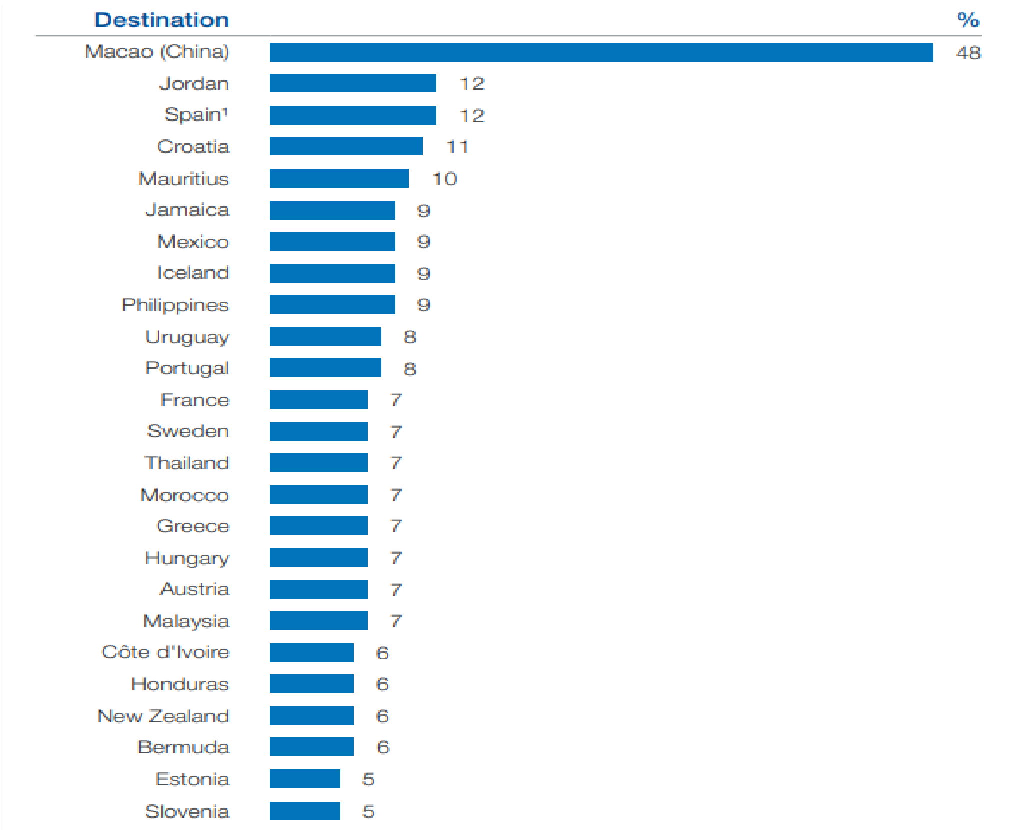

Chart 3: Economic contribution of tourism (direct tourism GDP as a % of total GDP), 2018 (Source: adjusted from UNWTO (International Tourism Highlights, 2020 Edition))

Tourism, consisting of both inbound and domestic tourism represents a major part of gross domestic product for many economies around the world. This proportion is largest in Macao (China) where tourism accounts for 48% of GDP.

3. MAIN CHALLENGES AND OPPORTUNITIES ON THE GLOBAL TOURISM MARKET

For a long period tourism has been growing and represents one of the key initiators in the global economy. The significance tourism has for the development, advancement and well-being of economy is still growing, and the following indicators speak in favour of that (UNWTO, 2021):

- 2019. was another year of strong growth, though international arrivals grew below the exceptional rates seen in 2017. (+7%) and 2018. (+6%).
- Demand was somewhat weaker for travel to advanced economy destinations in different regions.
- Uncertainty surrounding Brexit, geopolitical and trade tensions, and the global economic slowdown, weighed on growth.
- 2019. was also the year of major shifts in the sector with the collapse of travel group Thomas Cook and several low-cost airlines in Europe.
- All regions enjoyed an increase in arrivals in 2019, led by the Middle East (+8%). Asia and the Pacific and Europe both saw 4% growth.
- Against a backdrop of global economic slowdown, tourism spending continued to grow, most notably among the world's top ten spenders.
- France reported the strongest increase in international tourism expenditure among the world's top ten outbound markets (+11%), while the United States of America led growth in absolute terms (+USD 8 billion).

In the estimation of the total economic influence of tourism on the economy of a country, the direct, indirect and induced effect have to be considered. The direct effect of tourist consumption is equal to the total value of tourist consumption achieved in a certain period and space diminished by the value of imported products and services of the "first line," which are necessary to satisfy the tourist demand. The indirect effect of tourist consumption is achieved when the entities which gain a direct profit from tourist consumption spend the gained means on goods and services belonging to other local economy sectors (e.g. civil engineering, banks, energy sources, water system, etc.). The indirect effect will not include all the money achieved by the direct effect, but will be diminished by the amount spent on importing goods, taxes, savings, etc. Eventually, the remaining money will be further distributed to the local citizens in the form of salaries, dividends, annuities, interests, etc. It will partly be spent to buy goods and services in the local economy, representing thus the induced effect of tourist consumption. Therefore, by summing up those three levels an insight is gained into the real significance of the tourism economic effect for the receptive area (Križman Pavlović, 2008).

Diagram 1: The economic effect of the travel and tourism sector on a country's economy (Source: author's work according to Turner, R., Freiermuth, E., Travel & Tourism Economic Impact 2017 Croatia, World Travel & Tourism Councill (WTTC), 2017, p.2)

Turner et al. (2017) have recognised that the total contribution of the travel and tourism sector is much higher than the direct effect and aims at encompassing its indirect and induced effects (Diagram 1).

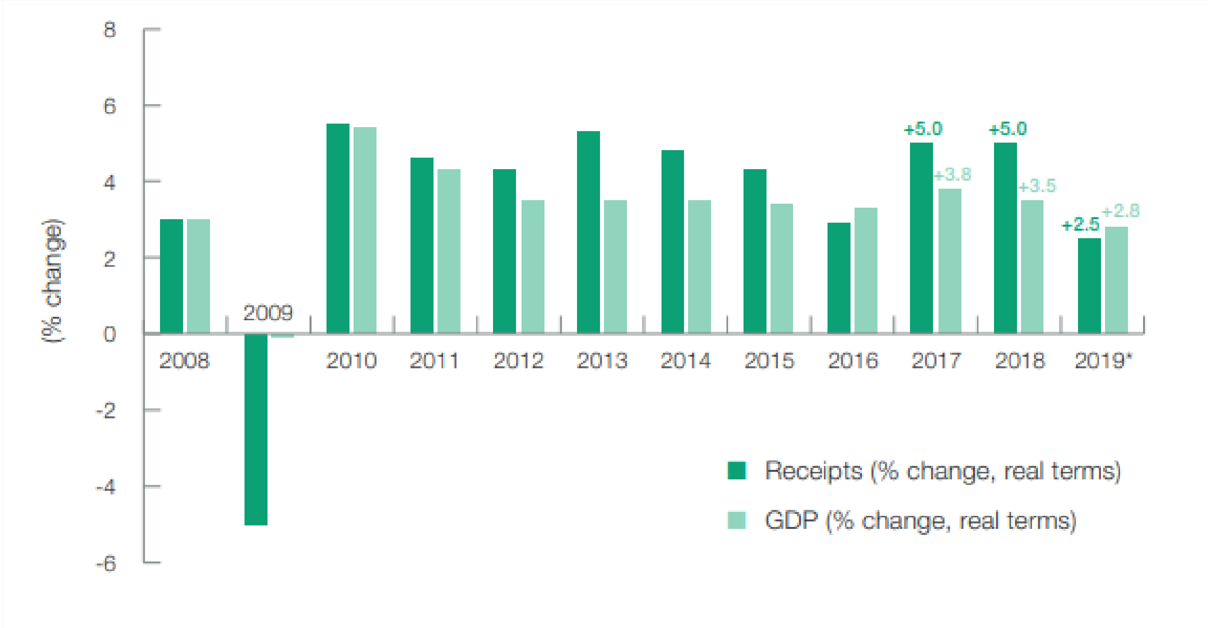

Chart 4: International tourism receipts and world GDP (real change, %)
(Source: adjusted adjusted from UNWTO (International Tourism Highlights, 2020 Edition))

Between 2009 and 2019, real growth in international tourism receipts (54%) exceeded growth in world GDP (44%).

4. CONCLUSIVE REMARKS

During the course of time tourism has gone through a continued expansion, despite occasional shocks, emphasizing thus the strength and resilience of the sector. Tourism is the third world's export category after fuel and chemicals, and before automobile industry products and food. In the last few years tourism has shown a powerful capacity to compensate for the poor export profit gained by countries which export goods and oil. The consumption by international visitors is treated as export for the country – destination, and as import for the country of the visitor's origin. Receptive tourism is the key source of income in a foreign currency and a significant contribution to the economy of many countries. It improves the necessary labour market and creates possibilities for development. The export income gained by international tourism (travel and transportation of passengers) is an important source of international income for numerous world's destinations, it helps creating new work positions, supports entrepreneurship, and develops the local economy. Tourism is the key component of diversification of export for both newly formed economies and mature economies. It has a strong capacity to diminish trade deficits and compensate for the weaker profit gained from exporting goods and services. For many small developing countries, tourism is the main source of income in a foreign currency, it can represent up to 90% of the total export, so the management of a country's tourism is a complex process, not only due to the nature of the sole occurrence of tourism, but also due to the complex organisation needed to manage it.

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THE NUTRIENT CONTENT IN MANURE AS A VARIABLE OF PROFITABILITY OF ORGANIC FERTILIZATION

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ABSTRACT

Soil fertility and crop requirements significantly affect fertilization in plant cultivation. Mineral fertilizers have been the basic form of fertilization for decades, but the importance of organic fertilizers is increasing due to soil degradation, environmental protection and increasing prices of mineral fertilizers. Since manures are cheaper than mineral fertilizer, it should be expected that fertilization with manure is universally cheaper. However, due to the costs of manure transport and application, as well as variability of manure quality, fertilization with manure does not have to be always profitable. The aim of paper was to analyze the impact of soil fertility and main nutrients, i.e. nitrogen (N), phosphorus (P) and potassium (K) content in manure on

profitability of organo-mineral comparing to mineral fertilization. Therefore, the costs of mineral and organo-mineral fertilization (combined application of manure and mineral fertilizers) were compared under conditions of different manure prices (5-20 EUR/t) and different contents of main nutrients in manure. Fertilization and nutrient requirements are highest on poor soils, and consequently fertilization costs are higher. For poor soils and lowest manure price (5 EUR/t), there should be at least 0.19% N (assuming also 0.47% as sum of N, P and K) to be less expensive than mineral fertilization. Considering highest manure price (20 EUR/t), there should be 0.57% N (and 1.43% as sum of NPK). The threshold for medium fertile soils was higher, 0.21% N and 0,52% NPK up to 0.82% N and 2.05% NPK. The highest threshold for nutrient content in manure for successfully decreasing costs of fertilization was on most fertile soils, there should be at least 0.68% up to 2.41% N, for lowest (5 EUR/t) and highest (20 EUR/t) manure price, respectively. The results show very significant impact of manure price and nutrient content in manure, but also there is significant impact of soil fertility and crop demands on profitability of organo-mineral fertilization with manure.
Keywords: *costs, effectiveness, manure, mineral fertilization, organo-mineral fertilization*

1. INTRODUCTION

Soil fertility is one of the most important factors for optimal fertilization (Lončarić et al., 2015). Fertilization with organic fertilizers, along with reducing the use of mineral fertilizers, is necessary in sustainable agricultural production due to the maintenance of soil fertility (Lončarić et al, 2022). Intensification of agricultural production and fertilization of the soil with mineral fertilizers leads to problems such as the high cost of fertilization, soil pollution with nitrates and loss of organic carbon from the soil (Nkoa, 2014). The amount of humus in the soil greatly affects the chemical and physical properties of the soil, such as water capacity, buffer capacity, metal binding capacity, sorption of hydrophobic organic compounds, stability of aggregates of soil particles, etc. (Wershaw, 1993). Soils are one of the world's most important resources, and their protection, maintenance and improvement are crucial for the continuation of life on Earth (Henry et al., 2020) so using organic fertilizers like manures and composts that are technological processes of waste management can solve the problem. The use of manure already in the first year reduces the need for mineral nitrogen fertilization by 35 kg/ha, and in topdressing by 14 kg/ha, and due to the cumulative effect of fertilization with manure over 5 years, it will result in less fertilization with mineral forms of N, P and K (Lončarić et al., 2022). Manures supply soil with nutrients, change soil pH, increase soil organic matter, cation exchange capacity, and improve soil physical properties, such as soil structure (Zingore et al., 2008). According to Chandra (2005), the nutritional value of cattle manure (0.4-0.5% N, 0.3-0.4% P_2O_5 and 0.3-0.4% K_2O) is lower than horse manure (0.5-0.6 % N, 0.4-0.6 P_2O^5 and 0.3-1.0% K_2O), and chicken manure has the highest fetlization value (1.0-1.8% N, 1.4- 1.8% P_2O_5 and 0.8 – 0.9% K_2O). Inorganic fertilizers, especially N, P and K, serve to maintain or improve crop yields (their application directly or indirectly causes physical and chemical changes in the soil and nutrients are directly accessible to plants), but their continuous use can result in a decrease in soil quality and production capacity (Belay, 2002). Manures, i.e. organic fertilizers, have a relatively low content of nutrients, so it is necessary to apply a larger amount of fertilizers in contrast to inorganic fertilizers, and therefore the combined application of organic and inorganic fertilizers makes a sustainable and cost-effective system for improving soil fertility (Bhatt et al., 2019). In addition to the fact that mineral fertilizers contribute to soil degradation, their price has been increasing in the last few years. Back in 2018 the prices of urea, KAN, NPK 7-20-30 and NPK 15-15-15 was 464, 337, 319 and 207 EUR/t, and in 2022 the prices reached 1,032 EUR/t, 903, 874 and 849 EUR/t (Nikolin, 2022). The aim of paper was to analyze the impact of soil fertility and main nutrients, i.e. nitrogen (N), phosphorus (P) and potassium (K) content in manure on profitability of organo-mineral comparing to mineral fertilization.

2. MATERIAL AND METHODS

2.1. Prices of organo-mineral fertilizers on the domestic market in Republic of Croatia

The prices shown in the research are average for Osijek-Baranja County in Republic of Croatia. The information were collected through research and investigation of websites, advertisements and by contacting manufacturers and distributors of organic and mineral fertilizers. Also, those prices are real time prices during July and August of 2022 that farmers actually have paid for fertilizers. The economic analysis was created based on the analysis of previously conducted fertilization experiments and survey research with producers in Croatia. Data with basic values for calculating fertilization (Lončarić et al, 2015.) were used to calculate fertilization needs for nitrogen, phosphorus and potassium in maize, wheat and rapeseed grown. In this model were used the soil classes according to plant available P and K (Table 1 and Table2). Tha basic model for calculation was to add in soil more P and K than the uptake with target yield will be for very poor and poor soils (classes A nad B), and less for high soil supply (classes D). Also, there was no planned fertilization with P and/or K for very high soil supply (class E).

Soil supply class	By fertilizing add to the soil as a percentage of the amount of P_2O_5 removed from plot by the yield
(A) Very poor soil	150 – 175
(B) Poor soil	100 – 150
(C) Well supplied soil	100
(D) High soil supply	50 – 75
(E) Very high soil supply	0

Table 1: Basic values for calculating phosphorus fertilization (Lončarić et al, 2015)

Soil supply class	By fertilizing add to the soil as a percentage of the amount of K_2O removed from plot by the yield
(A) Very poor soil	125 – 150
(B) Poor soil	100 – 125
(C) Well supplied soil	100
(D) High soil supply	50 – 75
(E) Very high soil supply	0

Table 2: Basic values for calculating potassium fertilization (Lončarić et al, 2015)

2.2. Soil and organic fertilizers data

Calculations of the required fertilization of corn, wheat and rapeseed for poor, medium fertile and fertile soils were used in the model, with additional combinations of low and high soil supply with P and K (Table 3).

pH_{H2O}	pH_{KCl}	Humus (%)	AL-P_2O_5	AL-K_2O	Soil class (AL-P_2O_5)	Soil class (AL-K_2O)
5.11	4.07	1.31	4.23	7.01	(A) very poor	(A) very poor
6.63	5.31	2.17	17.53	21.14	(C) moderate	(C) moderate
6.63	5.31	3.11	35.11	43.12	(E) very high	(E) very high
6.07	5.17	2.57	4.23	43.12	(A) very poor	(E) very high
8.06	7.33	2.31	23.67	43.12	(C) moderate	(E) very high
6.63	5.31	2.47	35.11	7.01	(E) very high	(A) very poor
6.63	5.31	2.73	35.11	21.14	(E) very high	(C) moderate

Table 3: Soil fertility data used in model for calculation of needs for fertilization

Also, the data on agrochemivcal analyses of manures in republic in Croatia in 2021. were used (Lončarić, 2022.). These data shows that the lowest content of nitrogen was detected in average for horse manure, higher for cattle, sheep and pig manure, and highest for broiler manure (Table 4). At the same time, the lowest content of phosphorus was measured for cattle manure, higher for sheep and horse manure, and highest for pig nad broiler manure. Very similar was the pattern for potassium, the lowest content in average in cattle manure, higher in pig, horse and sheep manure, and highest in broiler manure. The manure with lowest main nutrient (NPK) content was cattle manure (in average 24,1 kg/t as sum of N plus P_2O_5 plus K_2O), than horse (26,1 kg/t), sheep (28,7 kg/t), pig (38,9 kg/t) and highest in broiler manure (72,4 kg/t).

Manure	N (%)	P_2O_5 (%)	K_2O (%)	K/P ratio
Cattle manure	0,72	0,63	1,06	1,67
Pig manure	0,82	1,90	1,17	0,61
Horse manure	0,59	0,80	1,22	1,53
Broiler manure	1,80	2,59	2,85	1,10
Sheep manure	0,77	0,71	1,39	1,96

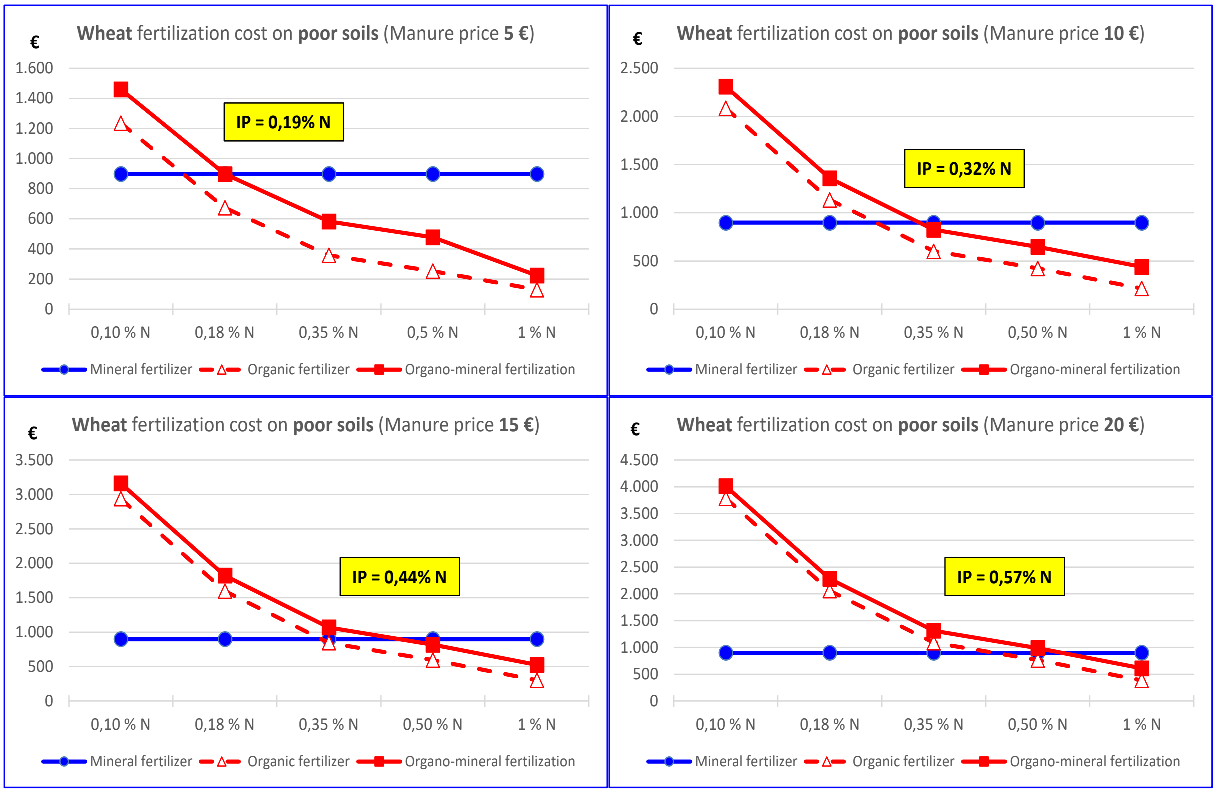
Table 4: Average content of nitrogen , phosphorus and potassium in Republic of Croatia

Within this study there will be shown profitability of organo-mineral fertilization for poor, medium fertile and fertile soils in the cultivation of wheat, rapeseed and corn. Variables in this model will be the price of manure (5, 10, 15 or 20 EUR/t) and different content of nitrogen, phospforus and potassium in the manure. All the results on price of fertilization with manures in this paper are calculated for high capacity of the manure spreader (14,000 kg) and for the short distance of the cultivated area from the manure storage site (up to 500 m).

3. RESULTS AND DISCUSSION

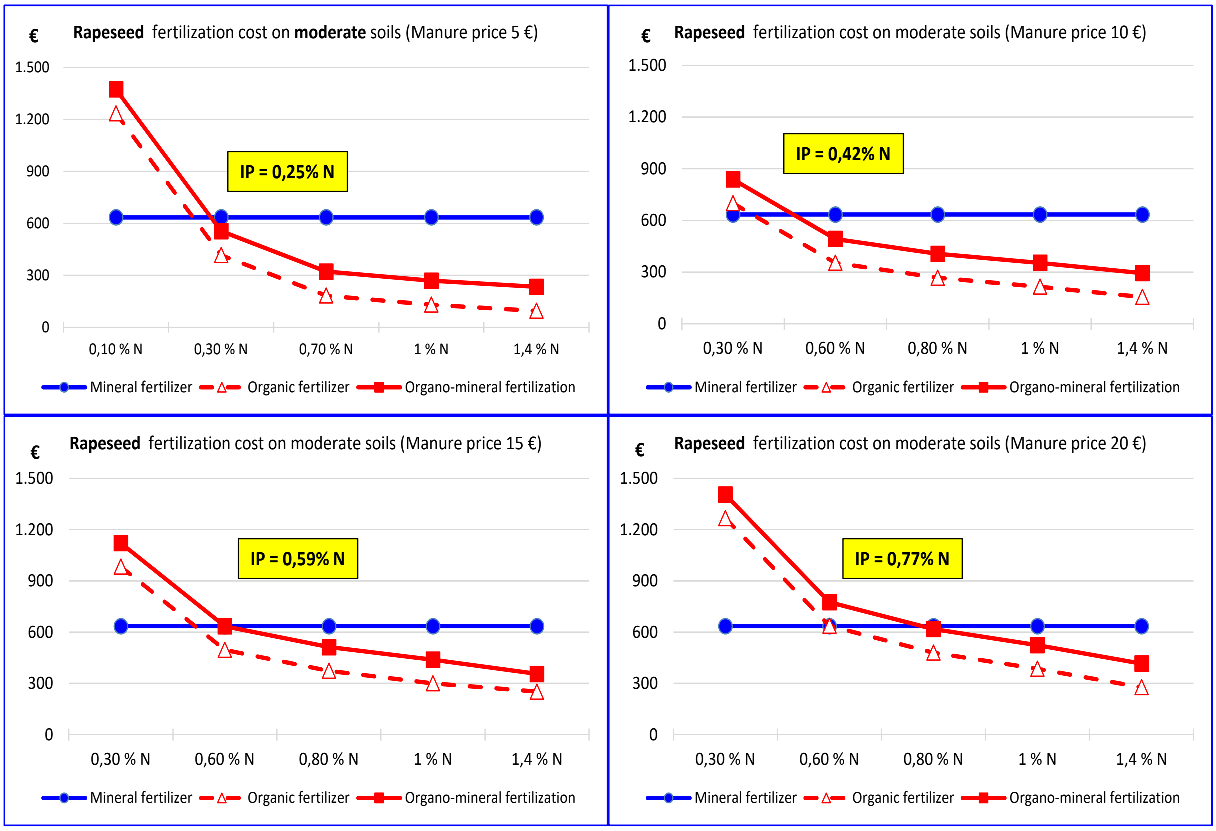
The manure value as replacement of commercial mineral fertilizer is very strongly correlated with nitrogen, phosphorus and potassium content. Therefore, it is possible to calculate how much nutrients (NPK) should be in the manure so that the price of fertilization with manure would be lower than fertilization with mineral NPK fertilizers. The value when the price of organo-mineral fertilization is equal to the price of mineral fertilization is the inflection point and any manure with more nutrients means that organo-mineral fertilization is cheaper than mineral fertilization. Since profitability depends significantly on the price of manure, it is interesting to calculate the inflection point, expressed in the content of N, for different prices of manure (Graph 1). The other important variables in the calculation of the price in this fertilization examples are the short distance of the cultivated area from the manure storage site (up to 500 m) and the high capacity of the manure spreader (14,000 kg). The inflection point in wheat growing on poor soils is in range 0.19-0.57% N if price of manure ranged 5-20 EUR/t. That means that price of organo-mineral fertilization will be lower than mineral fertilization if there is more than 0.19% N, 0.09% P_2O_5 and 0.19% K_2O. If the price of manure rises to 10 EUR, a minimum N content of 0.31% (in addition to 0.15% P_2O_5 and 0.31% K_2O) is required for the price of organo-mineral fertilization to be equal to the price of mineral fertilization. Also, the increase in the price of manure to 15 and 20 EUR increases the inflection point to 0.44% and 0.57% N. The question arises here, why is the linear increase in the price of manure not accompanied by a linear increase in the inflection point? The answer lies in the fact that the price of organo-mineral fertilization is not only made up of the required amount of manure and mineral fertilizers, but also the price of manure application, which is decreasing as the content of nutrients in the manure increases. For example, the cost of applying manure with 0.19% N is 421 EUR/ha, with 0.5% N 182 EUR/ha, and with 1% N in manure only 111 EUR/ha.

However, it is interesting that, when reducing the total cost of organic fertilization (purchase of manure + transport and application) due to the required smaller amount of organic fertilizer, the relative share of transport and application increases from 11.5 to 15.6% of the total cost of organic fertilization.

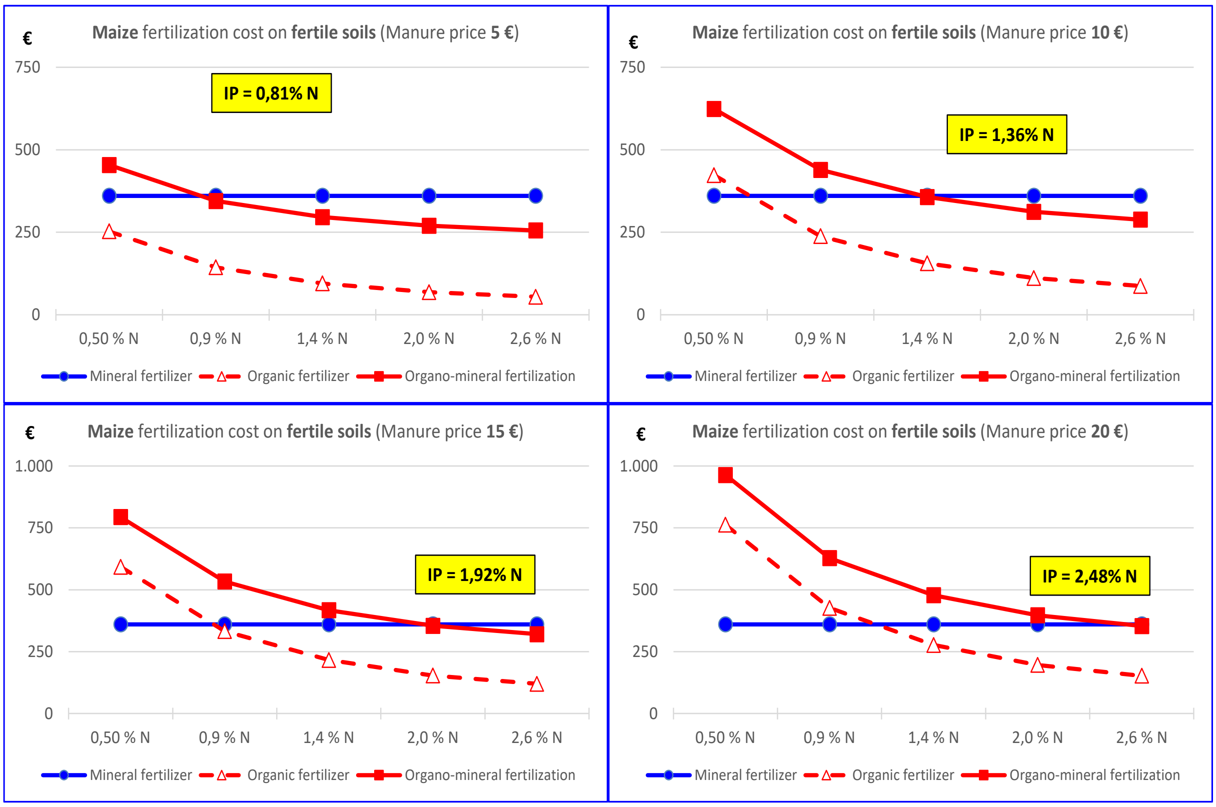


Graph 1: Inflection point of costs of wheat fertilization with mineral and organo-mineral fertilizers on poor soils

The inflection points in the cultivation of maize (0.18-0.57% N) and rapeseed (0.18-0.56% N) on poor soils are almost identical to the values in the cultivation of wheat. Since the average N content determined in the analyzes of cattle manure in Republic of Croatia (Lončarić at al., 2022a) was 0.72% (along with 0.63% P_2O_5 and 1.06% K_2O), we can conclude that it is profitable to use cattle manure with the above properties on poor soils in growing whaet, maize and rapeseed. On medium fertile soils, significantly less nutrients are needed in fertilization, and the inflection points are of slightly higher values. In rapeseed cultivation, the inflection points for manure price 5-20 €/t are 0.25 to 0.77% N (graph 2), in corn 0.21 to 0.64% N, and 0.27 to 0.82% N in wheat cultivation. The required N content for the inflection point in manure fertilization is higher on moderately fertile than on poor soils, because the need for phosphorus and potassium fertilization is lower, so the effect of manures in terms of replacing the required amounts of phosphorus and potassium is lower. The effect of manures in terms of replacement of the needed amounts of phosphorus and potassium is even lower on soils of the highest fertility because there is no need for phosphorus and potassium fertilization at all. This means that the direct effect of manure is reduced to replacing the needed amounts of nitrogen. Therefore, in order for the price of organo-mineral fertilization not to be higher than the price of mineral fertilization on fertile soils, a very high content of N in organic fertilizers is required, and the inflection point is 0.81 to 2.41% N with a range of manure prices of 5- 20 EUR/t (Graph 3). Significantly lower are amounts of nitrogen in manure for the inflection point in fertilization of wheat (0.68-2.09%) and rapeseed (0.69-2.11%) on fertile soils.



Graph 2: Inflection point of costs of rapeseed fertilization with mineral and organo-mineral fertilizers on soils with moderate fertility



Graph 3: Inflection point of costs of maize fertilization with mineral and organo-mineral fertilizers on soils high fertility

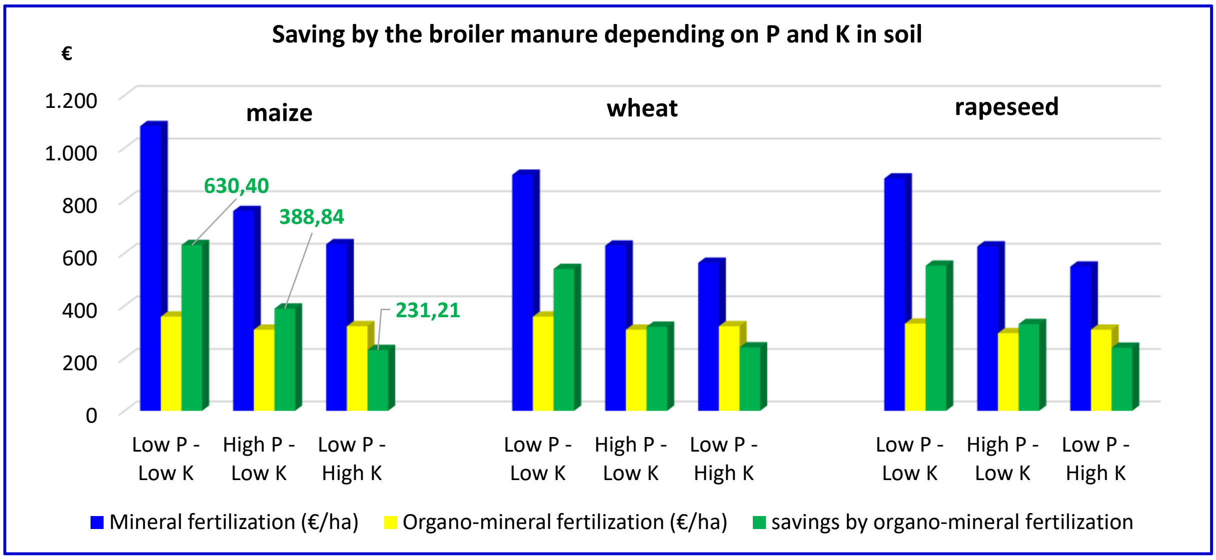
Due to the fact that the content of P and K in manure has no influence on the replacement of mineral fertilizers in the required fertilization, only pig manure (0.82 % N) and broiler manure (1.8 % N) contain N beyond the inflection point and pig manure only if the price of manure is very low (5 EUR). Since the price of manure on the market is higher than 5 EUR, it is profitable to use only broiler manure (contains 1.8% N) up to a price of 14 EUR/t on fertile soils in maize growing and 16.7-16.8 EUR in rapeseed and wheat growing. The previous examples prove that the content of N, P and K in manure, the price of manure and soil fertility significantly affect the total costs of fertilization, but also the direct profitability of using organic fertilizers as a substitute for nutrients in mineral fertilizers. Savings in fertilization costs through the use of manures is very certain on poor soils, but at the same time difficult to achieve on fertile soils (Table 5.).

Soil fertility	N (%) in manure	MG	Manure 10 EUR/t OMG	Manure 10 EUR/t Saving	Manure 15 EUR/t OMG	Manure 15 EUR/t Saving	Manure 20 EUR/t OMG	Manure 20 EUR/t Saving
Poor soil	0.15	1,083	1,809	-726	2,376	-1,293	2,943	-1,860
	0.25		1,255	-172	1,595	-512	1,935	-852
	0.50		840	243	1,010	73	1,180	-97
	0.75		701	382	814	268	928	155
	1.00		632	451	717	366	802	281
Moderate fertile soil	0.15	840	1,636	-796	2,203	-1,362	2,769	-1,929
	0.25		1,082	-241	1,482	-581	1,762	-921
	0.50		666	174	836	4	1,006	-166
	0.75		528	313	641	199	754	86
	1.00		458	382	543	297	628	212
Fertile soil	0.15	361	1,593	-1,233	2,160	-1,800	2,727	-2,366
	0.25		1,039	-679	1,379	-1,019	1,719	-1.319
	0.50		624	-263	794	-433	964	-603
	0.75		485	-125	599	-238	712	-351
	1.00		416	-55	501	-140	586	-255
	2.00		312	48	355	6	397	-37

Table 5: Price of mineral fertilization (MF), organo-mineral fertilization (OMF) and savings (in EUR/ha) in growing maize on different soils (manure 10-20 EUR/t and 0.15-1.0 % N)

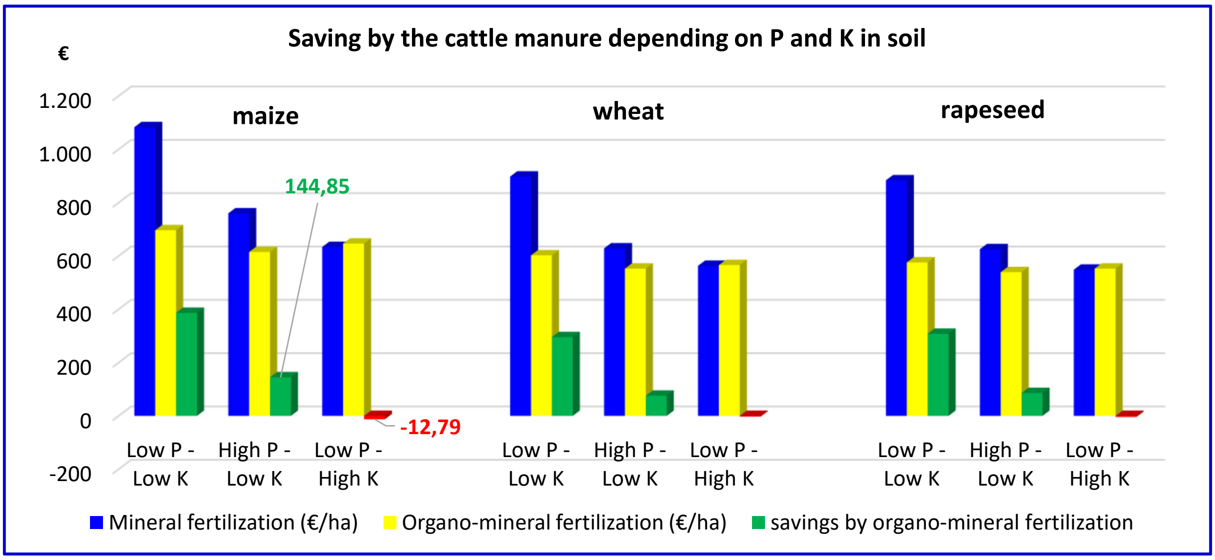
In the cultivation of maize on poor soils, it is not profitable to use only high-cost manures with low nutrient content, and on fertile soils, a reduction in the cost of fertilization will only be achieved by using low-cost organic fertilizers with a very high nitrgoen content. However, it is not always effective enough to define soil fertility in only three classes (poor, medium fertile and fertile) because there are several factors of fertility that can have different intensities in some soil. A very good example are soils with a low level of phosphorus supply (phosphorus-poor soils, or Low P, class A) and with a high level of potassium supply (potassium-rich soils, or High K, class E). Of course, it can also be the other way around (High P and Low K) with a whole range of combinations from class A to class E for level P and for level K. At the same time, manures can have from low to high P and K concentrations, but also different ratios of P and K (Table 1). Therefore, the potential savings in fertilization with manures do not only depend on the concentration of N, P and K, but also on the ratio of P and K. The highest total concentration of P plus K was in broiler manure (5.44 %) with more potassium than phosphorus (K/P = 1.1). The potential direct saving by using broiler manure in maize growing is 630 EUR/ha on poor soils, but also 389 EUR/ha on high P & low K soils, and 231 EUR/ha on low P & high K soils (Graph 4).

The same pattern was found in the savings when growing wheat and rapeseed.



Graph 4: Saving fertilization costs by broiler manure depending on P and K in soil

Savings are generally higher on soils that need to be fertilized with a larger amount of K than P, because the K content in manures is generally higher than phosphorus (K/P >1). But, even if K/P is <1, meaning that there is more P than K in manure, like in pig manure (Table 4), the saving will be higher on high P & low K soil (125 EUR/ha) than low P & high K soil (47 EUR/ha). The best example of the influence of the total P plus K quantity and the K/P ratio in the manure on the potential savings from the use of manure is the application of pig manure on low P & high K soils. Pig manure content 1,9 % P_2O_5 and 1,17 % K_2O with K/P ratio 0,61 and should be more effective on low P soils, but the saving was only 37 (maize) to 47 (wheat) EUR/ha because of higher total needs for K than for P.



Graph 5: Saving fertilization costs by cattle manure depending on P and K in soil

The highest impact of total P plus K quantity and K/P ratio on savings by manure application was calculated by cattle manure application on low P & hig K soils (Graph 5).

Cattle manure contains 0.63% P_2O_5 and 1.06% K_2O (K/P ratio 1.67), but significantly higher proportion of K does not significantly contribute to savings because there is low or no need for potassium fertilization (high K soil). Even more, organo-mineral fertilization with cattle manure is more expensive than mineral fertilization 3-13 EUR/ha on low P & high K soils, and the saving on high P & low K soils is 76-145 EUR/ha. Thus, the K/P ratio in manures significantly affects the savings achieved by organo-mineral fertilization, but this benefit is more significant if the fertilizer contains low levels of P and K (as in cattle manure), and less significant if the concentrations of P and K are higher, as in broiler manure.

4. CONCLUSION

The model for evaluating the agronomic value of solid manures (as a direct substitute for mineral fertilizers) shows that more important factors for the profitability of organo-mineral fertilization are the nitrogen, phosphorus and potassium content in the manure and the distance of the production area from the location where the manure is stored. Based on the results of the conducted tests, several basic conclusions can be established that fully or partially confirm the hypotheses of this paper. The application of solid manure with the addition of mineral fertilizers is less expensive than fertilization with only mineral fertilizers on soils with low soil supply with phosphorus and potassium. That is the case because on poor soils all three main nutrients, nitrogen, phosphorus and potassium are a substitute for a significant amount of nutrients that are most often added by mineral fertilizers. At the same time, the use of manures with insufficiently high concentrations of N is not cheaper than fertilization with mineral fertilizers on soils high supplied with phosphorus and potassium. Through research in this model, it was determined that the inflection point is a good indicator of the direct fertilizing value of manure because it shows a certain factor intensity (most often N content) above which organo-mineral fertilization is cheaper than fertilization with only mineral fertilizers. Inflection points were found from a very low 0.18% N to a moderate 0.57% N for fertilization of poor soils, depending on manure price from 5-20 EUR/t. That means that organo-mineral fertilization is cheaper than mineral fertilization if the price of manure is 5 EUR/t and content of N is at least 0,18 %, or if price is 20 EUR/t and content of N at least 0,57 %. Consequently, the inflection point was 0.25 to 0.77% N for moderately supplied soils, and as high as 0.68 to 2.41% for fertilization on fertile soils. Organo-mineral fertilization on poor soils achieve savings even with the price of organic fertilizers 20 EUR/t. On medium-fertile soils, savings with the same price of manure (20 EUR/t) were achieved only if the N content was > 0.77%, which was confirmed by analyzes in the Republic of Croatia on average for pig, sheep and broiler manure, but not for cattle manure (0.72% N). According to the inflection point for fertile soils, there is no direct savings with the use of horse, beef and sheep manure even at a price of 5 EUR/t, but only with the use of pig (0.82 % N) and broiler manure. The use of broiler manure due to its high N content (1.8% N) results in direct savings on fertile soils up to the price of manure 14 or 17 EUR/t in the fertilization of corn or rapeseed and wheat, respectively. The potential savings in fertilization with manures do not only depend on the concentration of N, P and K, but also on the ratio of P and K. Savings are generally higher on soils that need to be fertilized with a larger amount of K than P, because the K content in manures is generally higher than phosphorus (K/P >1). Thus, the K/P ratio in manures significantly affects the savings achieved by organo-mineral fertilization, but this benefit is more significant if the fertilizer contains low levels of P and K (as in cattle manure), and less significant if the concentrations of P and K are higher, as in broiler manure. The research in this paper proves the great importance of the content of nitrogen and the price of manure, and it can be concluded that it would be completely justified to base the price of manure on the content of nitrogen, phosphorus and potassium.

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THE POTENTIAL OF SOIL CARBON IN REACHING THE NET-ZERO GOAL

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ABSTRACT

The importance of soil is evidenced by the fact that land is the basis for food production and safety, it is the largest planetary water filter and reservoir for its use, habitat of many species, and that it participates in regulating the emission of carbon dioxide and other greenhouse gases. The organic carbon content of soil is a key indicator of its health. The real content of organic carbon contained in a soil is determined by the balance between carbon inputs and losses, which are influenced by land management and soil type. Agricultural practices that alter rates of carbon input or loss change the stock of soil organic carbon. At the global scale, soil has about 1500 billion tonnes of carbon in the form of organic matter, two times more than the atmosphere, and nearly three times more than stored in plants. Moving towards net zero greenhouse gas (GHG) emissions by 2050 is likely a pre-condition for avoiding global warming higher than 1.5^{o} C by the end of the century. The appropriate land-use and agriculture practices can provide about one third of this global commitment while ensuring sustainable development, food security and farmer resilience.

Keywords: *Greenhouse gas, Emission, Net zero, Organic carbon, Soil*

1. INTRODUCTION

There are five global carbon pools, oceanic, fossil fuel, pedologic, atmospheric, and biotic. The terrestrial carbon pool (pedologic and biotic) is about 3.2 times the size of the atmospheric pool and 4 times that of the biotic. The soil carbon pool comprises of two components: soil organic carbon (SOC) and soil inorganic carbon (SIC) pools. Terrestrial carbon plays an important role in all terrestrial life, and strongly impacts numerous ecosystems services. The terrestrial pools have been drastically altered by soil cultivation, deforestation, biomass burning and other anthropogenic activities. Carbon emissions from terrestrial pools are increased by soil desertification. In contrast to the fossil-fuel pool, which has been a significant source of CO_2, it is important to emphasize that terrestrial carbon pool can be a source, as well as a sink for atmospheric CO_2, depending on land use and management. The important role of the soil carbon pool in the global climate change (GCC) is widely confirmed, and can be considered in the short and long term. (Lal, 2013) The first one includes the exchange of carbon between the pedosphere, atmosphere, biosphere, and hydrosphere. Carbon is exchanged among them over a decadal/centennial scale in near surface through decomposition of biomass, exchange of CO_2 between the ocean and the atmosphere, and the exchange between the atmosphere and biota. (Lal, 2013) The long term global climate change, occur at a millennial time scale, involves deep reservoirs (more than 90% of the Earth's total carbon pool). Since the adoption of the Paris Agreement and the release of the IPCC Special Report on Global Warming of 1.5° C, a growing number of countries have committed to net zero emissions targets. Achieving global net zero in line with the Paris Agreement requires rapid and deep reductions in global greenhouse gas (GHG) emissions. (Lal, 2013, 2001, 2004a, 2004b) This goal requires not only rapid GHG emission reductions but simultaneously the protection of GHG sinks and the significant enhancement of GHG removals. The encouraging development is the indication of long-term net-zero emissions pledges by an increasing number of countries that currently account for more than half of global emissions (Lal, 2013, 2003).

2. THE SOIL CARBON AND GLOBAL CLIMATE CHANGE

Soil organic matter is a key component of any terrestrial ecosystem, and any variation in its content and composition has seriously effects on many of the processes that occur within the system. The quantity of organic matter and soil carbon stock results from an equilibrium between the inputs and outputs from the system. These processes are depanded on various parameters (natural or human). A decrease of organic matter in topsoil can have considerable negative effects on the water holding capacity of the soil, on the soil structure stability and density, on nutrient storage and supply, and on soil biological components. Aside from climatic factors that influence carbon changes in the soil, unsuitable land uses and management are the main cause of decline in SOM. (FAO i ITPS, 2015) Climate change, as a serious threat, affects all regions around the world and its consequences impact many different area. The climate crisis has increased the average global temperature and is leading to more frequent high-temperature extremes. Climate change may worsen erosion, reduce organic matter, salinisation, soil biodiversity loss, landslides, desertification and flooding. The effect of climate change on soil carbon storage can be related to changing atmospheric CO_2 concentrations, increased temperature and changing precipitation model. Extreme precipitation events, fast melting of snow or ice, high river discharges and increased droughts are all climate-related events which influence soil degradation. Deforestation and other human activities (e.g. agriculture) also play a role. (https://ec.europa.eu) Due to the obvious climate changes, in dry areas (increased temperature and evaporation) the deserts are expected, causing the decrease of SOC reserves.

2.1. Responses to soil organic matter decrease

Suitable land uses and practic could reverse the tendency of SOM decline and contribute to soil carbon sequestration. Actualy, increasing the SOM amount is crucial for agriculture and food production. (Bationo, 2007) According to the results of investigation soil organic matter plays a considerable role in stabilizing soil and in preventing its physical, chemical and biological degradation. Land degradation leads to emission of carbon to the atmosphere, as a result of soil organic matter oxidation. One of the major opportunity for greenhouse gas mitigation identified by the IPCC is the sequestration of carbon in soils. With current concerns about climate change and the rise in atmospheric CO_2 it has been proposed that this process could be reversed and that the soil could be used to capture and store carbon. (FAO i ITPS, 2015) Namely, soil organic matter could be built up again through carbon sequestration. The direct method of carbon sequestration is implemented by immediately binding carbon compounds at the source of its formation—before it enters the atmosphere. Bounded carbon is stored for a long period of time in specially designated landfills that are properly protected and environmentally friendly. The indirect method involves the use of plants that bind CO_2 in photosynthesis or when carbon compounds are bound in a soil environment. In these methods, sequestration can take place involving physical, chemical, or biological processes. There is also the possibility of carbon sequestration by advanced methods. (Kowalska, 2016; Shelukindo, 2014) Without the sequestration of carbon, the level of CO_2 in the atmosphere would now be around 600 ppm, with an associated warming about double that currently observed (Friedlingstein, 2020). Co-benefits of soil C sequestration include: advancing food and nutritional security, increasing renewability and quality of water, improving biodiversity, and strengthening elemental recycling. (https://doi.org/10.1016/j.cosust.2015.09.002) Systems that provide prices for carbon sequestration or taxes for emissions can have important effects on emission and sequestration levels. (https://www.annualreviews.org)

3. NET-ZERO EMISSIONS TARGETS

Achieving global net zero according to the Paris Agreement requires prompt and profound reductions in global greenhouse gas (GHG) emissions, and the scaling-up of removals. Net-zero emissions implies the state where the amount of all anthropogenic emissions and removals is zero (Figure 1).

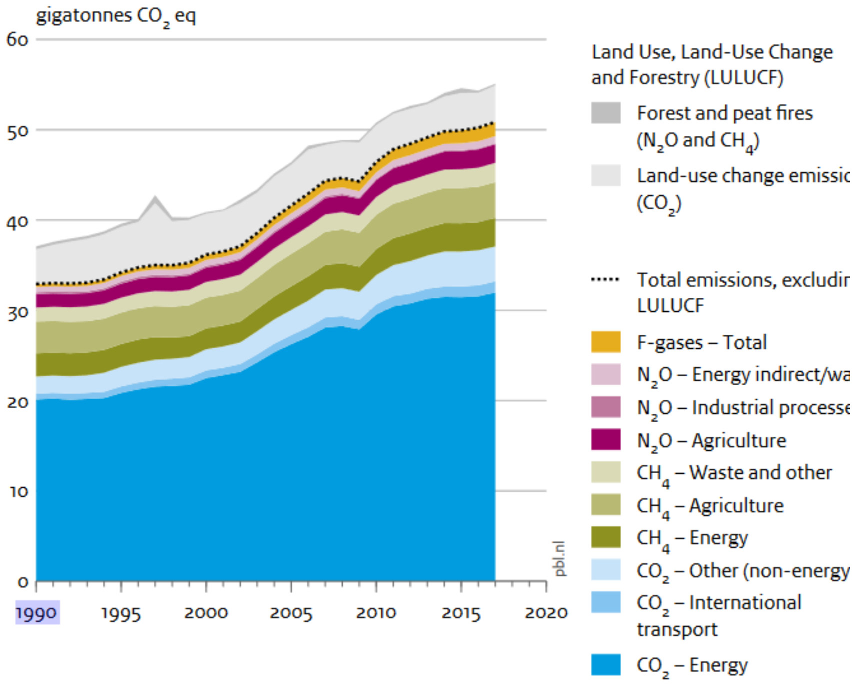

Figure 1: Global greenhouse gas (GHG) emissions per type of gas and source, including LULCF
(Source: EDGAR, 2017; Houghton and Nassikas, 2017)

Net-zero emissions targets are defined differently, depending on they apply to all greenhouse gasses or only to carbon dioxide. Net-zero GHG emissions are achieved when total aggregate GHG emissions over a given period are equal to an equivalent amount of aggregate GHG removal (Intergovernmental Panel on Climate Change 2021b). Net-zero CO_2 emissions are defined similarly but for CO_2 only. Reaching net-zero GHG emissions targets involves at least two, and in most cases three, interlinked strategies: deep reductions in CO_2 emissions, the upscaling of CO_2 removal, and deep reductions in other GHG emissions. In mentioned context, the land plays a significant role. The capacity of terrestrial sinks and reservoirs, such as soils, wetlands, peatlands, forests to sequester and store GHG, as well as the adoption of practices and processes in the use and management of land to limit emissions from and enhance removals in this sector, will be key achieving the net-zero goal. The IPCC reports that activities related to 'Agriculture, Forestry and Other Land Use (AFOLU)' accounted approximately 13% of CO_2, 44% of methane CH_4, and 81% of nitrous oxide (N_2O) emissions from human activities globally (2007-2016), representing 23% of total net anthropogenic GHG emissions. Agriculture, on the one hand, is the sectors already suffering from the heaviest negative impacts of climate change. At the other hand, the mitigation potential of agriculture is significant, equivalent to around 6 billion tons of carbon dioxide per year. Approximately about 90% of this potential lies in increasing carbon sinks, primarily through sequestering carbon in the soil, reducing emissions from inputs (e.g. fertilizers) and livestock management (e.g.manuremanagement), etc. Forests are also crutial in accomplishing net-zero emissions.

For that reason, measure such as avoiding deforestation is crutial. Other actions include growing new forests, restoring old forests and better forest management. (Figure 2) According to the IPCC, reducing the global warming to 1.5° C require up to 9.5 million km^2 increase in forests by 2050 relative to 2010.

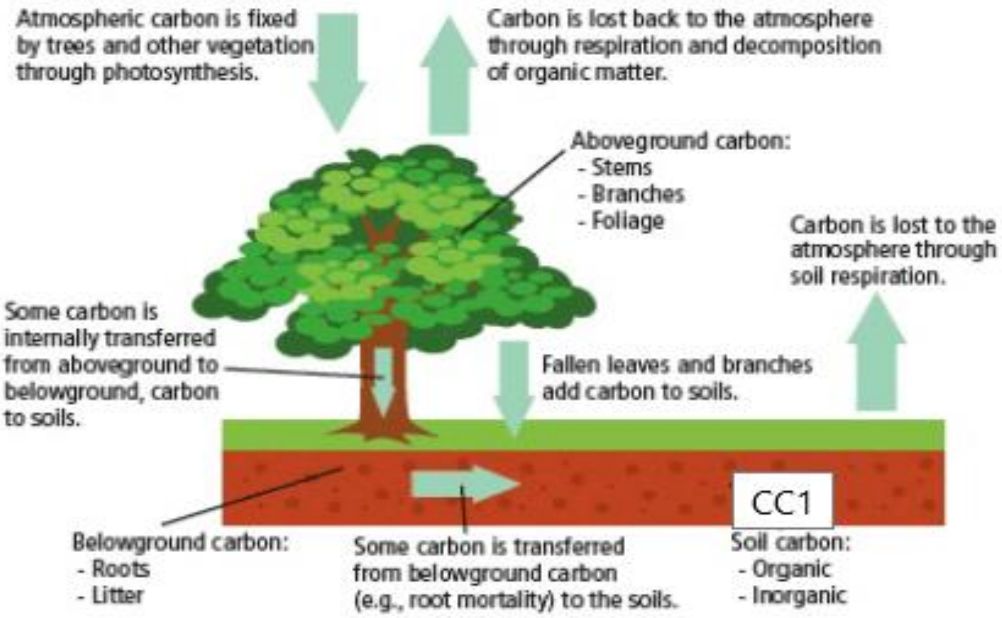

Figure 2: Carbon cycle
(Source: U. S. Environmental Protection Agency)

With respect to the land sector participation in reaching global net-zero CO_2 emissions, the IPCC emphasizes that all approach that limit global warming require land-based mitigation and land-use change. In any case, because of the multiple approach which the land sector offer, difficult choices will have to be made. According to IPCC: "Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services. Mitigation options limiting the demand for land include sustainable intensification of land-use practices, ecosystem restoration and changes towards less resource-intensive diets. The implementation of land-basedmitigation optionswould require overcoming socio-economic, institutional, technological, financing and environmental barriers that differ across regions." The Global Assessment Report on Biodiversity and Ecosystem Services by the Inter Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) states that "the large-scale deployment of bioenergy plantations and afforestation of non-forest ecosystems can come with negative side effects for biodiversity and ecosystemfunctions. Nature-based solutions with safeguards are estimated to provide 37 per cent of climate change mitigation until 2030 needed to meet the goal of keeping climate warming below 2°C, with likely co-benefits for biodiversity. Therefore, land-use actions are indispensable, in addition to strong actions to reduce greenhouse gas emissions from fossil fuel use and other industrial and agricultural activities. However, the large-scale deployment of intensive bioenergy plantations, including monocultures, replacing natural forests and subsistence farmlands,will likely have negative impacts on biodiversity and can threaten food and water security as well as local livelihoods, including by intensifying social conflict." Therefore, land-based climate change mitigation activities can be beneficial and support biodiversity conservation goals, but it can also negatively impact conservation goals (FAO i ITPS, 2015).

4. CONCLUSION

Climate change, as a serious threat, affects all regions around the world and its consequences impact many different area. The climate crisis has increased the average global temperature and is leading to more frequent high-temperature extremes. Climate change may worsen erosion, reduce organic matter, salinisation, soil biodiversity loss, landslides, desertification and flooding. The effect of climate change on soil carbon storage can be related to changing atmospheric CO_2 concentrations, increased temperature and changing precipitation model. Land degradation leads to emission of carbon to the atmosphere, as a result of soil organic matter oxidation. One of the major opportunity for greenhouse gas mitigation identified by the IPCC is the sequestration of carbon in soils. With current concerns about climate change and the rise in atmospheric CO_2 it has been proposed that this process could be reversed and that the soil could be used to capture and store carbon. Since the adoption of the Paris Agreement and the release of the IPCC Special Report on Global Warming of 1.5° C, a growing number of countries have committed to net zero emissions targets. Achieving global net zero in line with the Paris Agreement requires rapid and deep reductions in global greenhouse gas (GHG) emissions. This goal requires not only rapid GHG emission reductions but simultaneously the protection of GHG sinks and the significant enhancement of GHG removals.

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