

**Varazdin Development and Entrepreneurship Agency and University North**  
in cooperation with  
**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**  
**Polytechnic of Medimurje in Cakovec**  
**University of Applied Science "Nikola Tesla" in Gospic**



# **Economic and Social Development**

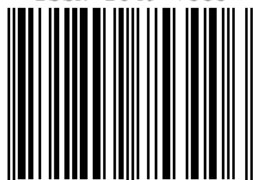
105<sup>th</sup> International Scientific Conference on Economic and Social Development –  
"Building Resilient Society"

## **Book of Proceedings**

Editors:

**Ivana Kovac, Petar Misevic, Andrey Zahariev**

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## **Economic and Social Development**

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## THE EFFECT OF LEADERSHIP STYLES ON THE BUSINESS PERFORMANCE OF SME-S

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### ABSTRACT

*The purpose of this paper is to research the behavior and types of leadership, as well as the approaches of the leaders of the participating companies, but also how leadership affects the rise of business performance, taking into account that nowadays we need genuine leadership, in this paper, we will try to identify and examine the quality factors in raising business performance. The methodology of the study is known in the scientific and practical aspects. From the scientific-research point of view, it deals with the used literature, while from the practical point of view analysis will be carried out in the selected companies. The population has as a criterion for the selection of SMEs operating in Kosovo. The sample for the collection of data for this research was made up of 50 randomly selected small and medium-sized enterprises. The data collected from the questionnaire are tested with Cross tabulation-Chi square tests, One Way Anova analysis, and Factorial analysis. The data were processed with SPSS version 21. The rate used in the questionnaire is based on a 5-point Likert scale (with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree). The research claims to give a detailed overview of how businesses are managed by leaders and what are the advantages of businesses that work in groups and are led by effective leaders.*

**Keywords:** Leadership styles, performance, SME

### 1. INTRODUCTION

Nowadays, we have growing attention to the issues regarding the training of employees and their retention in the company. In most organizations, we can say that we have a movement of employees from their place of work because of bad conditions in the place of work; on the other hand, such a thing can cost the company because it needs to hire new workers who then have to be trained and this creates additional costs which then have to be covered by the company. In order not to create a bad image in the market as well as amongst its employees, the company must be properly managed by competent people who have these management skills. Therefore, the presence of a genuine leader is important for a company to be successful and show high performance. The success of an organization highly depends on active employee engagement due to the fact that it improves performance and productivity. These key factors contribute highly to generating the most vital part of a business's profit (Sulamuthu & Yosuf, 2018). A successful organization is based on an assessment of the abilities of individuals to exercise their functions efficiently, effectively, and sustainably (Gashi, Pozega, & Crnkovic, 2017). Employee engagement has a positive effect on work efficiency. It is related, inter alia, to customer loyalty, profitability, productivity, turnover increase, security, limitation of rotation, and lack of absenteeism. A deficit of engagement can result in serious consequences in practice (Juchnowicz & Kinowska, 2018). A company needs to have cooperation and communication between staff and customers. If there is no cooperation, things can get difficult and it won't take long for the business to start failing. Cooperation is not always easy to achieve. To be truly effective, leaders must bring coherence to many activities within the company.

The ability to communicate is one of the essential qualities of a leader, to support the position of the leader and to have a reciprocal relationship with others; their successes can also be your successes. (Ramosaj, 2006) Many companies are focused on the advancement of employees by organizing various trainings. Employee engagement influences various organizational outputs, productivity, and employee turnover. Now, the institution must focus on advancing levels of employee engagement which will produce employee initiative, innovation, and proactive proactivity in nature. (Chandra, 2021).

## **2. REVIEW OF LITERATURE**

In the framework of globalization, the term leadership has taken on special importance due to the fact and the place it occupies in the company and its leadership. There are many definitions of the term leadership. Leadership consists of influencing the attitudes and behaviors of individuals and the interaction within and between groups to achieve goals.” (Kesting, Ulhø, Song, & Niu, 2015). Leaders are the individuals in the organization who set the tone and culture. An effective leader is able to influence his or her followers to reach the goals of the organization. (Taran, Shuck, Gutierrez, & Baralt, 2009). A leader is one or more people who selects, equips, trains, and influences one or more follower(s) who have diverse gifts, abilities, and skills and focuses the follower(s) on the organization’s mission and objectives causing the follower(s) to willingly and enthusiastically expend spiritual, emotional, and physical energy in a concerted coordinated effort to achieve the organizational mission and objectives (Winston & Patterson, 2006). We often discuss the issue of an effective or ineffective leader. An effective leader can be said of a person who has incorporated the individual interests of company members into the general interest, thus contributing to the achievement of the desired results. For many centuries, leadership was seen just as a personal quality. (Silva, 2016). Therefore, it can be said that the qualities possessed by a leader are not possessed by a manager. We can mention some of the characteristics that distinguish the leader from others: integrity, delegation, communication, self-awareness, gratitude, learning agility, influence, empathy, courage, and respect (CCL, 2022).

## **3. LEADERSHIP STYLES**

Leadership style plays a decisive role in the life of every organization. An organization has to select a suitable leadership style to be successful in the competitive environment (Karacsony, 2021). Different leadership styles have a specific influence on employees. Authoritative is one of the styles that provide guidance and vision to their team members, ensuring that they have a clear view of what success looks like as they work toward organizational goals. Furthermore, with this leadership style, the boss has complete control over subordinates. Team members, on the other hand, have little opportunity to make proposals, even if they are in the best interests of the business (Ullah, et al., 2022). Other leadership styles can be mentioned such as the democratic style and laissez-faire style. The democratic style is based on the idea that all managers in a chain of command are supervisors while the laissez-faire leadership style is where all the rights and power to make decisions are fully given to the worker. The directive manager will tell their direct reports what their roles and duties are and what is expected of them (Pawar, 2014). According to (Milhem, Muda, & Ahmed, 2019) the results of the confirmatory factor analysis (CFA) showed that there is a positive relationship between transformational leadership and employee engagement. On the other hand, according to the author (Bija, 2020), the high level of employee engagement is influenced by leadership style, work culture, and job satisfaction. Companies should choose a style that contributes to the common goals of workers and leaders, which would then be a reason for raising the performance, motivation, and inspiration of workers.



If a leader delegates work properly to workers by assigning to each worker the work that should be done then this will make them feel inspired and willing to do the assigned work. Taking into account that individuals are different and have different personalities, the task of the leader is to apply the approachstyle that is appropriate to achieve common concessions in achieving the goals of the organization.

#### **4. BUSINESS PERFORMANCE OF SMES IN KOSOVO**

Small and medium-sized enterprises (SMEs) have long been recognized as engines of economic growth and development. The impact of small and medium enterprises even in the global economy is very important for increasing employment and reducing poverty(Malaj & Abazaj, 2020).According to (ARBK, 2022) we can see that the new businesses have suffered a reduction somewhere 460 of the total number of businesses in Kosovo were deregistered in the period April-June 2022, of which we have 404 individual businesses, 5 general partnerships, 47 companies with limited liability, 3 Branches of Foreign Companies in Kosovo, 1 Office of the foreign representation in Kosovo. The legal form with the largest number of liquidations for this period was the Individual Business, followed by the Limited Liability Company. On the other hand, we note that we have a considerable number of businesses that have been registered during the period April-June 2022 where we have a total of 2852 businesses, of which we can mention that 2 individual businesses have been registered, 1918 Limited Liability Companies, 6 Joint Stock Companies, 12 Branches of Foreign Companies in Kosovo, 1 Office of Foreign Representation in Kosovo and 1 Agricultural Cooperative. The legal form with the largest number of registrations during this quarter was the Limited Liability Company, followed by the Individual Business. Therefore, companies must develop strategies and policies to manage environmental issues and pressures, developing a management culture(Kerr, 2006). The performance of a business is based on the results contributed by the leader towards the achievement of the organization's objectives. Therefore, increasing the skills of transformational leadership will improve the leader's work performance and the organization's performance(Mahdinezhad, Suandi, Silong, & Omar, 2013).The performance of a company can be evaluated in different ways, but the main performance characteristics are financial performance and effective organization(Mulollili, Islami, & Skenderi, 2015). As financial indicators, among others, we can mention data on sales, profits, and profit margins for small and medium enterprises, comparing the impact of leadership changes with the annual impacts of companies. Proper strategic planning and systematic decision-making can be key determinants of the survival and success of these firms(Shala, Kutllovci, & Troni, 2012).

#### **5. METHODOLOGY**

To realize this study a methodology consisting of a combination of primary and secondary data has been used. A considerable amount of secondary data is gathered from existing literature about the usage and impact of leadership practices on SME performance. To evaluate the hypotheses of the conceptual model, an onlinequestionnaire was designed usingthe Qualtrics online survey tool.For empirical analysis of the study, a questionnaire has been used. The population has as a criterion for the selection of SMEs operating in Kosovo. The sample for the collection of data for this research was made up of 50 randomly selected small and medium-sized enterprises, based on annual turnovers.The data collected from the questionnaire are tested with Cross tabulation-Chi square tests, One Way Anova analysis, and Factorial analysis. The data were processed with SPSS version 21. The rate used in the questionnaire is based on a 5-point Likert scale (with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5= strongly agree)

## Hypotheses:

- **H<sub>1</sub>** : There is a strong positive relationship between the gender of leaders and time spent by leaders on consultations with company employees
- **H<sub>2</sub>**: There is a difference between age groups and leadership styles
- **H<sub>2.1</sub>**. The increase in the leader's age significantly correlates with the increase in the use of an authoritative leadership style.

## 6. DESCRIPTIVE STATISTICS

Table 1. presents the frequency distribution for gender and age. In total participated 50 companies (SME-s). All of respondents, 18 % are female's and 82% are male. 2% of respondents are 18-25 years old, 24% of them belong to 26-31 years old ,46% of them belong to 32-50, and only 28% of them over 50 years old.

*Table 1: Frequency distribution (n=50)*

		Age_of_leaders			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	1	2.0	2.0	2.0
	26-31	12	24.0	24.0	26.0
	32-50	23	46.0	46.0	72.0
	over 50	14	28.0	28.0	100.0
	Total	50	100.0	100.0	

		Gender_of_leaders			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	41	82.0	82.0	82.0
	Female	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

## 7. HYPOTHESES TESTING

- **H<sub>1</sub>** : There is a strong positive relationship between gender of leaders and time spent by leaders on consultations with company employees.

To test this hypothesis, I have used Pearson Chi-Square – Crosstabulation. The model summary(R=.563) and Asymp. Sig. (2-sided)= .755 >0.05. Shows that, consequently, support hypothesis H<sub>0</sub> and refuse the fishypothese H<sub>1</sub>

*Table 2: Results of Chi-square tests*

Gender_of_leaders * Time_spent_for_consultations_with_company_employess Crosstabulation					
Count		Time_spent_for_consultations_with_employers			Total
		once a week	twice a week	more than twice e week	
Gender_of_leaders	Male	18	10	13	41
	Female	3	2	4	9
Total		21	12	17	50

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.563 <sup>a</sup>	2	.755
Likelihood Ratio	.551	2	.759
Linear-by-Linear Association	.521	1	.470
N of Valid Cases	50		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.16.

- H<sub>2</sub>: There is a difference between age groups and leadership styles
- H<sub>2.1</sub>. The increase in the leader's age significantly correlates with the increase in the use of an authoritative leadership style

This hypothesis was tested through the ANOVA test. Presented are the data for each variable. The important part is the significant part if there is any difference between the groups. From this we can say that there is a difference between the groups for the autocratic Sig. 035<0.05 and laissez faire style variable Sig.001<0.05, and there is no difference for the democratic leadership style variable Sig. .262>0.05. To show if there is a difference between the leadership styles and the age group of the leaders, it is important that only in one group there is a difference and the hypothesis is verified.

*Table 3: Results of ONE WAY ANOVA-test*

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
The_democratic_style_of_leadership	Between Groups	1.822	2	.911	1.378	.262
	Within Groups	31.058	47	.661		
	Total	32.880	49			
The_authoritarian_style_of_leadership	Between Groups	7.150	2	3.575	3.593	.035
	Within Groups	46.770	47	.995		
	Total	53.920	49			
The_laissez_faire_style_of_leadership	Between Groups	13.304	2	6.652	8.965	.001
	Within Groups	34.876	47	.742		
	Total	48.180	49			

Now we will see between which groups this difference exists. From the following table we see the multiple comparisons of the variables.

*Table following on the next page*

### Multiple Comparisons

#### Tukey HSD

Dependent Variable	(I) Age_of_leaders	(J) Age_of_leaders	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
The_democratic_style_of_leadership	26-31	32-50	.29630	.31289	.614	-.4609	1.0535
		over 50	-.12698	.34731	.929	-.9675	.7135
	32-50	26-31	-.29630	.31289	.614	1.0535	-.4609
		over 50	-.42328	.26772	.264	1.0712	-.2246
	over 50	26-31	.12698	.34731	.929	-.7135	.9675
		32-50	.42328	.26772	.264	-.2246	1.0712
The_authoritarian_style_of_leadership	26-31	32-50	-.77778	.38396	.117	1.7070	-.1514
		over 50	1.13492*	.42620	.028	2.1664	-.1035
	32-50	26-31	.77778	.38396	.117	-.1514	1.7070
		over 50	-.35714	.32853	.527	1.1522	-.4379
	over 50	26-31	1.13492*	.42620	.028	.1035	2.1664
		32-50	.35714	.32853	.527	-.4379	1.1522
The_laissez_faire_style_of_leadership	26-31	32-50	1.25926*	.33156	.001	.4568	2.0617
		over 50	1.45238*	.36804	.001	.5617	2.3431
	32-50	26-31	1.25926*	.33156	.001	2.0617	-.4568
		over 50	.19312	.28370	.776	-.4935	.8797
	over 50	26-31	1.45238*	.36804	.001	2.3431	-.5617
		32-50	-.19312	.28370	.776	-.8797	.4935

\*, The mean difference is significant at the 0.05 level.

The first variable has to do with the democratic style of leadership where we see that there is no difference in the age group of the leaders in the use of this style of leadership. The second variable has to do with the authoritarian style of leadership where we see that there is difference in the age group of the leaders in the use of this style of leadership. The authoritarian style was suitable for the age over 50 years old. The third variable has to do with the laissez faire style of leadership where we see that there is difference in the age group of the leaders in the use of this style of leadership. The laissez faire style was suitable for the age between 26-31 years old and 32-50 years old. Validity analysis (factorial) - shows that the statements used to measure the nature of leadership measure this at a fairly high level, about 64.31%, explaining the total variance formed by 9 statements and 3 factors.

Table following on the next page

*Table 4: Results KMO and Bartlett's Test*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.527
Bartlett's Test of Sphericity	Approx. Chi-Square	127.343
	df	36
	Sig.	.000

The KMO table and Bartlett's Test show whether the data set is suitable or not for performing factorial analysis. The KMO test values of  $0.527 > 0.50$  show that the set of the data is suitable for performing factorial analysis. Bartlett's test also verifies this which is significant and  $p = 0.000 < 0.05$ . So there is a correlation between the variables. The Total Variance Explained table shows the total variance explained. In total, 3 factors were formed from 9 statements. The three factors formed explain 64.31% of the total variance and this is a moderately high value. Rotated Component Matrix - The first factor consists of 7 statements, the second factor consists of 4 statements and the third factor consists of 9 statements.

<b>Total Variance Explained</b>									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.590	28.773	28.773	2.590	28.773	28.773	2.253	<b>25.036</b>	25.036
2	1.872	20.798	49.571	1.872	20.798	49.571	2.190	<b>24.332</b>	49.368
3	1.327	14.745	64.316	1.327	14.745	64.316	1.345	<b>14.948</b>	64.316
4	.979	10.883	75.198						
5	.831	9.230	84.429						
6	.530	5.890	90.319						
7	.407	4.517	94.836						
8	.266	2.955	97.791						
9	.199	2.209	100.000						

Extraction Method: Principal Component Analysis.

<b>Rotated Component Matrix<sup>a</sup></b>			
	Component		
	1	2	3
Authoritative leadership style creates better opportunities for achieving results at work	.790		.189
In complicated situations the management approach should be used	-.781		-.315
Employess feel under pressure during the assignment of work tasks	.656		-.207
Leadership based more on people than on tasks	.593		-.391
The negotiating approach of leaders is more acceptable than the other two approaches(leading and persuasive)	-.310	.768	-.290
Communication between the leader and the staff plays an important role in achieving the objectives	.328	.762	-.260
Employess participate in the decision-making process in the company	.169	.720	.348
Employess must be supervised in order to give results in their work		.686	.314
Employess should be given bonus rewards to motivate them for the work they do			.802

## 8. CONCLUSION AND RECOMMENDATION

To be truly effective, leaders must bring coherence to many activities within the company. As a result, in this part of the paper, I have addressed the relationship that exists between leadership styles and age groups of leaders. From the results obtained from the participating companies, it has emerged that there is still the belief that the authoritarian style is much more acceptable than other styles, especially among leaders over the age of 50 because they have been used to that style in the past and have adapted. This has to do with the fact that the leader is a kind of boss who supervises others for the work they do and makes the right decisions without consulting others. A difference exists in the young age group from 25-50 years old, who preferred the democratic style of leadership, a style that gives more space to cooperation and communication with the staff in the decision-making process. The performance of the company increases if we have collaborations and communications between the staff for certain problems in the company. Most of the male leaders of the companies emphasized that they hold consultative meetings with the staff at least once a week to see the workflows compared to the female leaders, where the majority of them emphasized that meetings more than 2 times a week are more productive in the work results. Most of the respondents pointed out that the performance of the company increases if they provide an innovative culture in the company. It is also good that leaders change and do not stay long in one company because each leader brings with him an innovation to the company. A leader with appropriate experience in the relevant field, trained with appropriate scientific and professional training, affects the growth of business performance.

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## **"SAFEGUARDING MANAGEMENT" IN SPORT - APPLICATION OF SAFETY MANAGEMENT AND STAKEHOLDER PROTECTION IN GYMNASTICS IN THE REPUBLIC OF CROATIA**

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### **ABSTRACT**

*The importance of sport in human life is remarkable. Sport is one of the key life tools in achieving overall health. It shapes a person mentally and physically, providing excellent character building, creating self-confidence, healthy life habits as well as important life skills. Sport is also key in socialization, it enables teamwork, participation, equality, inclusion, integrity, mutual respect while creating a sense of belonging, national pride, freedom. Sport involves a huge number of stakeholders, it is a very intensive activity in which various profiles of human characters mix, so it is not surprising that regardless of the benefits it provides, it also hides certain forms of harassment and abuse. In order for sport to express and achieve all its benefits, engagement and responsibility at the highest level is necessary to enable all stakeholders in sport to have the security of free development and action. Croatian gymnastics at the highest level of the national federation - the Croatian Gymnastics Federation has decided to follow the safety policy of the International Olympic Committee of the IOC and the International Gymnastics Federation FIG by organizing "safeguarding" management. The goal of the "safeguarding" management is to create a safe environment for all stakeholders in gymnastics through the fundamental principles of safe sport with the help of established regulatory policies and procedures that protect the most necessary basis for the development of gymnastics in the Republic of Croatia: freedom and safety.*

**Keywords:** *freedom, safeguarding, security, sport, protection, well-being*

### **1. INTRODUCTION**

This paper talks about the importance of providing a free and safe environment for all stakeholders in gymnastics in the Republic of Croatia as well as establishment and implementation of "safeguarding" management. The focus is on the policies and procedures that the Croatian Gymnastics Federation, as the highest national governing body of gymnastics in the Republic of Croatia, decided to establish in order to protect the safety of athletes and other participants in gymnastics. Based on the example of the International Olympic Committee (IOC) and the International Gymnastics Federation (FIG), established policies contain the basic principles of protection and an approach to protection against harassment and abuse. Procedures represent procedures and concrete actions that follow policies with the aim of fully protecting all stakeholders from any attempt or incident of harassment and abuse in the sport of gymnastics. In order for sport to produce its numerous benefits in human development, to enable free and creative development, it is necessary to enable safety and protection, trust and free development and action, to protect the integrity of both athletes and all those who work within the sport of gymnastics, promoting its values. Promoting safe sport is an urgent task and an international imperative for good governance in sport. A systematic multi-agency approach to prevention is most effective, involving athletes, entourage members, sports managers, doctors and therapists, educators and criminal justice agencies.

### **2. WHAT IS "SAFEGUARDING"**

"Safeguarding" is a term in English language that translates as preserving safety, and in Croatian it means measures and procedures aimed at protecting the health, well-being and human rights of individuals, which enables everyone, especially children, young people and vulnerable



adults, to live without abuse, injury and neglect. Unfortunately, society as a whole, including sports, is subject to some form of abuse. According to the Declaration on Human Rights, Article 1 "All human beings are born free and equal in dignity and rights." They are endowed with reason and awareness and should treat each other in the spirit of brotherhood." Respecting the basic human right to life, development and activity in a free and safe environment, it is the duty of every organization in sports to protect children and adults as well as all staff from any form of abuse. "Safeguarding" in the Croatian Gymnastics Federation is synonymous for management policy and procedures for the protection of all stakeholders in the sport of gymnastics.

### **3. "SAFEGUARDING" IN THE WORLD - INTERNATIONAL OLYMPIC COMMITTEE**

"It is the duty of all stakeholders in sport to adopt the general principles for safe sport, to implement and monitor the policy and procedures for safe sport, which states that all athletes have the right to be treated with respect, protected from non-accidental violence... Consensus statement of the IOC., "Harassment and abuse in sport" (2016). "For the IOC and the entire Olympic movement, the safety and well-being of athletes is paramount. With Olympic Agenda 2020, we have demonstrated our commitment to putting athletes at the centre of the Olympic movement. This commitment includes supporting athletes on and off the field of play – recognizing all the rights of athletes, including the right to enjoy a safe and supportive sporting environment. Sport is a microcosm of society. Wider societal ills occur both in and outside of sport. Sports organizations have the responsibility to take affirmative steps, in order to protect sports and all those who play sports (Dr. Uğur Erdener, Vice President of the IOC Medical Scientific Commission). What are other countries doing to solve the problem? In the USA, the Centre for Safe Sports started operating in 2017. It is supported by legislation and can respond to all forms of accusations, whether it is physical, psychological or sexual abuse. Similarly, Human Rights Watch in Japan called for the creation of such a centre before the Tokyo Games. Several cases of abuse and violence in British gymnastics have been uncovered. Sally Munday, director of UK sport, was open to the establishment of an independent centre. A similar situation in Swiss competitive gymnastics has become public. The authorities called for the creation of a national centre for reporting abuse in sports. In Australia, Sports Integrity Australia (SIA) deals with match-fixing, doping/anti-doping and safe sport. Canada has a UCCMS or Universal Code of Conduct to prevent and address bullying in sport. Although AD demands an Independent Centre for Safe Sports, this is not their only goal. "End the silence, reveal the injustice, state the consequences for athletes, recognize the structures that encouraged sexual abuse and prevent exposure, recognize the injustice, protect children and young people," they said (V.B) (taken from <https://antidoping-hzta.hr/sport-mora-biti-siguran/>). The International Olympic Committee, wanting to protect all stakeholders in sports, putting athletes in particular at the core of their care, has developed policies and procedures for the protection of athletes in the form of the manual "IOC Toolkit for safeguarding athletes from harassment and abuse in sports" (IOC\_Safeguarding\_Toolkit\_ENG\_Screen\_Full1.pdf), calling it a "tool". security protection system. More than 50 people within the Olympic movement worked on this manual in collaboration with numerous organizations, emphasizing how important protection and safety are to the development of athletes and any stakeholder in sport. A person is a part of society, an athlete is a part of a social community and they are in an interactive relationship. The community creates and shapes the athlete in different ways, and the athlete needs a free and safe community in order to develop. This International Olympic Committee toolkit aims to help National Olympic Committees and International Federations establish their own safeguarding policies and procedures, i.e., procedures for ensuring the protection and safety of all stakeholders in sport against any form of harassment and abuse in sport.

Despite the many benefits that playing sports brings to man and society, unfortunately there is also a lot of evidence that abuse happens almost every day, wrapped in various hidden forms of behaviour, but you always "feel something in the air". Therefore, open and free communication, education and protection are precisely a series of tools that will pave the way for action in ensuring protection. This set of tools of the International Olympic Committee, formed into a manual of policies and procedures, is crucial in order to react in the right place, at the right time, and continue to act in accordance with regulatory policies.

#### **4. "SAFEGUARDING" IN THE INTERNATIONAL GYMNASTICS FEDERATION FIG**

The International Gymnastics Federation or FIG for short (from the French name Fédération Internationale de Gymnastique) is an international association that gathers national gymnastics federations and coordinates and manages the work of the gymnastics sport. It was founded in 1881 in Belgium, which makes it the oldest international sports federation. As it originally brought together only three European federations (Belgium, France, the Netherlands), it was initially called the European Gymnastics Federation, but it later changed its name by accepting member countries from outside Europe. Today there are 129 member countries in FIG. The current president is Morinari Watanabe (<https://hr.wikipedia.org/>). President Watanabe is extremely proud of the FIG because it is the first national federation in the world to implement "safeguarding" management. He encouraged all national gymnastics federations to follow the path of FIG. At the "Safe Sport Symposium" held on October 3, 2023 during the World Championships in Antwerp, organized by the Royal Belgian Gymnastics Federation, he sent a clear and inspiring message to everyone: "Let's challenge ourselves to create a great future together". The successful prevention and eradication of abuse and harassment of athletes and all stakeholders in sports rests on the effectiveness of the leadership of large international and national sports organizations. The Croatian Gymnastics Federation, following the example of the International Olympic Committee (IOC) and the International Gymnastics Federation (FIG), follows a determined position that abuse of any shape or form has no place in sport. Sport is a global communication that "crosses cultures and laws, but there is only one culture that must be applied: the culture of respect" (IOC). "All participants in Gymnastics need to know how to raise concerns and be confident that these will be responded to by their National Federation, their National Olympic Committee, Sports Authorities, or the FIG in keeping with the FIG Policies and Procedures. Everyone should be aware of the avenues and means open to them for assistance and support (Safeguarding, <https://www.gymnastics.com>). Following the example of the International Olympic Committee, the International Gymnastics Federation, FIG in Lausanne on September 3, 2018 adopted the document "Policy and Procedures for Safeguarding and Protecting Participants in Gymnastics" which fully dedicates itself to the protection of stakeholders in sports, especially young athletes, by prescribing measures and tools to prevent and respond to incidents of non-accidental violence, harassment and abuse. At the same time, as the umbrella world body of gymnastics, it states that each national gymnastics federation has the responsibility to adopt and implement such a policy with the aim of protecting athletes and all stakeholders in the sport of gymnastics. Clear intent, strong leadership to spot, identify, prosecute and ultimately eradicate unacceptable practices is important. FIG declares: "A case of any form of harassment and abuse that occurs at any level within a National Federation (NF), on its territory and/or involving members of said NF, will be reported in accordance with the procedures implemented by their National Federation, their National Olympic Committee and Sports Authorities or other official protection organizations in the country concerned). If an incident occurs at an official FIG event (events listed in the FIG calendar) involving individuals from another federation, or if a member of a national federation does not have the opportunity to report internally for any reason, persons needing support or

wishing to report an incident will be able to contact the "Helpdesk" Gymnastics Ethics Foundation. FIG policy and procedures state that National Federations, as FIG members in good standing, are responsible for:

- Development and implementation of policies and procedures to protect participants from harassment and abuse,
- Ensuring that such policies and procedures are in accordance with the standards of the FIG Policies and Procedures;
- Ensuring that all participants in gymnastics are familiar with and follow the FIG Code of Conduct;
- Notifying the Gymnastics Ethics Foundation and the FIG of any disciplinary sanctions imposed by the NF in connection with an incident that occurred at a FIG competition handled by the NF or where the NF has suspended or expelled a member of the NF who participated or may have participated participate in FIG or other NF activities
- Notifying the Gymnastics Ethics Foundation and the FIG on a 'need to know' basis of all NF suspensions if it is reasonably believed that an individual could pose a risk to gymnastics participants outside the relevant national federation". (Safeguarding, <https://www.gymnastics.sport/site/pages/safeguarding-page.php>)

The International Gymnastics Federation FIG constantly holds seminars and symposia on the topic of the protection and safety of athletes and all stakeholders in the sport of gymnastics, with a particular emphasis on the education of coaches. In this regard, from January 2024, FIG introduces the mandatory „Safeguarding" certificate for all coaches, which raises the level of awareness and knowledge about this very important topic, making it mandatory in coaching work. Although changes do not happen suddenly and overnight, it is important not to give up and constantly influence people's mentalities, educate them, communicate, build positive environments in which sports will take place without fear of unwanted events. "The 10 Golden Rules of Gymnastics" is an FIG campaign launched for the first time in October 2021, one year after top athletes, coaches, sports administrators, sports officials and several national federations shared their ideas and solutions at the FIG online conference to improve the training environment. The campaign reflects a strong desire within the gymnastics community to ensure a respectable and safe environment in the sport of gymnastics. (Safeguarding, <https://www.gymnastics.sport/site/pages/safeguarding-page.php>).

*Figure following on the next page*

Figure 1: "The 10 Golden Rules of Gymnastics"



Source: <https://www.gymnastics.sport/site/pages/safeguarding-goldenrules.php>

The previous image shows the slogans of the International Gymnastics Federation FIG, made very attractively, in the form of cartoons that represent the 10 golden rules of gymnastics and in a very illustrative way reflect the free, fun and safe practice of gymnastics in an environment that is necessary for free development. According to the FIG, the "10 Golden Rules of Gymnastics" campaign represents the principles that emerged as a conclusion after numerous testimonies of athletes who announced themselves on social networks over time.

After going through all the recommendations of independent investigations carried out in several countries where serious accusations related to the topic of various forms of abuse occurred, the FIG sublimated the feedback from the field, received from athletes, coaches, other stakeholders in the gymnastics sport, into the final text of the leaflet with 10 most important rules. This is considered one of the first steps of the International Gymnastics Federation. Since then, FIG constantly follows new generations of athletes, listens, communicates, recognizes a strong desire for change. Finally, the decision of the international gymnastics sport is to change mentalities, not to tolerate old, authoritarian training methods, however successful they may have been in the past. Such an approach in the world gymnastics sport is a big turn and a step towards a free and safe sport. ([www.gymnastics.sport/site/pages/safeguarding-goldenrules.php](http://www.gymnastics.sport/site/pages/safeguarding-goldenrules.php))

## **5. CAN THE CROATIAN GYMNASTIC FEDERATION MAKE A DIFFERENCE?**

The Croatian Gymnastics Federation (HGS) is the umbrella organization of gymnastics in the Republic of Croatia, which unites and coordinates the work and activities of 70 members. "Everyone in sport has the right to be protected from non-accidental violence, harassment and abuse irrespective of their race, colour, sex, sexual orientation, language, religion, political or other opinion, national or social origin, property, birth, disability, physical attributes, athletic ability or other status" (FIG, Safeguarding). Everyone who participates in the sport of gymnastics under the Croatian Gymnastics Federation must know that they can seek protection of their safety and freedom of work and development in their national federation which will protect them, which will react to even the slightest concern with the aim of preventing unwanted events. The Croatian Gymnastics Federation made a decision to establish a "safeguarding" management. Guided by the directions and policies of the IOC and FIG, the Federation established the document "Safety and Protection Policy of the Croatian Gymnastics Federation's stakeholders", which defined a series of rules and procedures with the aim of prevention, but also recognition and further action in the case of any form of threat to the safety of stakeholders in gymnastics sport.

## **6. CROATIAN GYMNASTIC FEDERATION'S STAKEHOLDER SAFETY AND PROTECTION POLICY AND PROCEDURES**

Following the IOC (2016 IOC Consensus Statement) and FIG (Guidelines for the National Federation Template Safeguarding Policy and Procedures, [www.fig.com](http://www.fig.com)), the Croatian Gymnastics Federation establishes the document Policy and Procedures for the Safety and Protection of Stakeholders of the Croatian Gymnastics Federation, which clearly defines 5 forms of harassment and abuse:

- 1) Psychological abuse: Any unwanted act including confinement, isolation, verbal assault, humiliation, intimidation, infantilization or any other treatment, which may diminish an individual's sense of identity, dignity and self-respect.
- 2) Physical abuse: Any intentional and unwanted act – such as hitting, beating, kicking, biting and burning – that causes physical trauma or injury. Such acts include forced or inappropriate physical activity (e.g., age or physically inappropriate loads during training, when injured or in pain), forced consumption of alcohol, other stimulants or forced doping.
- 3) Sexual harassment: Any unwanted and undesirable behaviour of a sexual nature, whether verbal, non-verbal or physical, can have the form and definition of sexual harassment.
- 4) Fornication and sexual harassment: Conduct of a sexual nature, without contact, contact or penetration, where consent is coerced/manipulated or is not or cannot be given.
- 5) Neglect: Failure of a coach or other person, with a duty of care owed to an athlete, to provide a minimum level of care that may cause harm, permit harm, or create an imminent risk of injury.

With the aim of implementing procedures to protect the safety of stakeholders in sports based on defined forms of harassment and abuse, Croatian Gymnastics Federation follows six basic principles of protecting the safety of stakeholders in gymnastics:

- 1) Principle: EMPOWERMENT - encouraging and supporting the making of one's own decisions and informed consent;
- 2) Principle: PREVENTION - it is better to do something before damage occurs;
- 3) Principle: PROPORTIONALITY - the least intrusive response that corresponds to the presented risk;
- 4) Principle: PROTECTION - support and representation of the neediest;
- 5) Principle: PARTNERSHIP - with local communities that have a role in detecting and preventing, detecting and reporting neglect and abuse;
- 6) Principle: RESPONSIBILITY - responsibility and transparency of practice.

In order to prevent and detect in time any attempts and intentions to commit any form of abuse and neglect, the Croatian Gymnastics Federation has established channels of communication from anonymous to transparent. With the appointment of a security officer, a communication procedure for reporting through different channels and forms of reporting was established. Anonymous communication is available through a form on the website of the Croatian Gymnastics Federation, as well as a transparent application through a form with name and surname, direct written or oral communication directly to the chief officer for protection and safety is possible. Communication in any form requires maximum confidentiality and serious understanding or further action.

## **7. SECURITY AND PROTECTION MANAGEMENT OF STAKEHOLDERS OF THE CROATIAN GYMNASTIC FEDERATION**

Management is a complex job that provides managers with a great deal of authority. However, along with these powers, responsibilities are also inevitable."(<https://www.mojrazvoj.com/o-edukacijama/pojedinacne-edukacije/75-menadzment-upravljanje-poslovima-i-ljudima>).

Speaking about the responsibilities of the management of security and protection of the stakeholders of the Croatian Gymnastics Federation, it is important to point out that the Croatian Gymnastics Federation most seriously approached the organization of managing this segment of activity precisely because of the significant responsibility of managing freedom, safety and protection, which is a necessary but urgent need so that a person can act freely and to develop in the sport of gymnastics. Accepting the definitions of possible forms of threat as well as the 6 basic principles of the system of protection and safety of stakeholders in gymnastics and following the adopted acts, Croatian Gymnastics Federation established its own hierarchical management including internal and external factors that must participate in the process of protecting all stakeholders in gymnastics. Internal management factors are the Security Officer of the management of safety and protection of stakeholders in the sport of gymnastics, the Disciplinary Commission and the Executive Board of the Croatian Gymnastics Federation. External factors are the medical service, police, lawyers, independent investigators of FIG, Croatian Olympic Federation and other relevant institutions. Through the agreed available forms of application communication, the Security Officer receives applications to which he pays special attention, processes them, determines the origin, manages further procedures. Further procedures depend on the judgment and evaluation of the officer as well as the results of the first tests upon application. If the Security Officer assesses that there are elements of a threat to life, he is obliged to notify and involve the medical emergency service as soon as possible, which will promptly devote itself to the goal of securing and establishing the life functions of the endangered person.

At the same time, the Security Officer assesses the incident, determines the responsibilities of further action and determines the routes for processing. If he assesses that there are elements of a criminal offense, he is obliged to inform the police as an external factor as well as internal factors, the Executive Board of the Croatian Gymnastics Federation and the Disciplinary Commission for further action, both in their respective areas. The incident is simultaneously reported to the International Gymnastics Federation FIG and the Croatian Olympic Committee as competent organizations of their jurisdiction. Upon receipt of the report, the police begin with the necessary protective measures and proceed with criminal proceedings. The Security Officer, the Disciplinary Commission and the Executive Board of the Croatian Gymnastics Federation, in accordance with their powers, rights and duties, as well as the legal profession, an independent investigator or other relevant institutions, work on the investigation of the case, initiate procedures and make decisions, collect evidence and all information in order to complete the case and present adequate conclusions. A person who is suspected of having committed the intent or act of endangerment should be suspended from any role in the Croatian Gymnastics Federation. At the end of the investigation, determination of the circumstances of the crime, and the results, the Croatian Gymnastics Federation will proceed with final measures and sanctions in accordance with its acts. It is important to emphasize that all suspicions that have been noticed outside of the activities of the Croatian Gymnastics Federation must also be reported to the police in order to ensure adequate protection of the vulnerable person.

### **7.1. Registration procedure**

Anyone can report a suspected incident or act of harassment or abuse. The mechanisms are as follows:

- In writing via the Croatian Gymnastics Federation form
- By telephone or by e-mail directly addressed to the Security Officer of the Croatian Gymnastics Federation,
- To the personally responsible person Security Officer for Security and Stakeholder Protection of the Croatian Gymnastics Federation

### **7.2. "Whistleblower" category**

Whistleblower is a popular name among the public for whistleblowers. Most often, it will be an employee who exposes certain information about illegal activities within a private, public or state organization. The new Croatian Law on the Protection of Whistleblowers stipulates that it is a natural person who reports or publicly exposes irregularities that he has learned about in his work environment (<https://www.iusinfo.hr/aktualno/u-sredistu/novi-zakon-on-the-protection-of-the-reporter-of-irregularities-of-the-circumstances-in-which-he-came-into-power-and-corruption-as-a-social-phenomenon-53534>). Although incidents can be reported in the Croatian Gymnastics Federation through the channels provided, "whistleblowers" may appear, which are defined and recognized by Croatian law. The Croatian Gymnastics Federation is aware that individuals may hesitate to make a report due to fear of the consequences they might suffer, especially if the perpetrator is a person in a position of power. Therefore, it is obligatory to keep the identity of the "whistleblower" a secret. Any person who files a complaint in good faith must not be subject to retaliation or other adverse consequences for filing a complaint. These protections will not apply to a person who intentionally makes a complaint that is false, harassing, vindictive or frivolous.

Important when registering:

- a) If the complaint about harassment or abuse is committed by or against a child, any action taken must be in accordance with the policy and procedure of the HGS stakeholder safety and protection management.
- b) If it is noticed that the offender belongs to the jurisdiction of another National Federation, the Croatian Gymnastics Federation will forward the report to the FIG, the relevant National Federation or the National Olympic Committee.
- c) Any participant who has reported or experienced harassment or abuse involving a person or persons belonging to another organization or unrelated to the sport will receive support from HGS.

Procedures upon application:

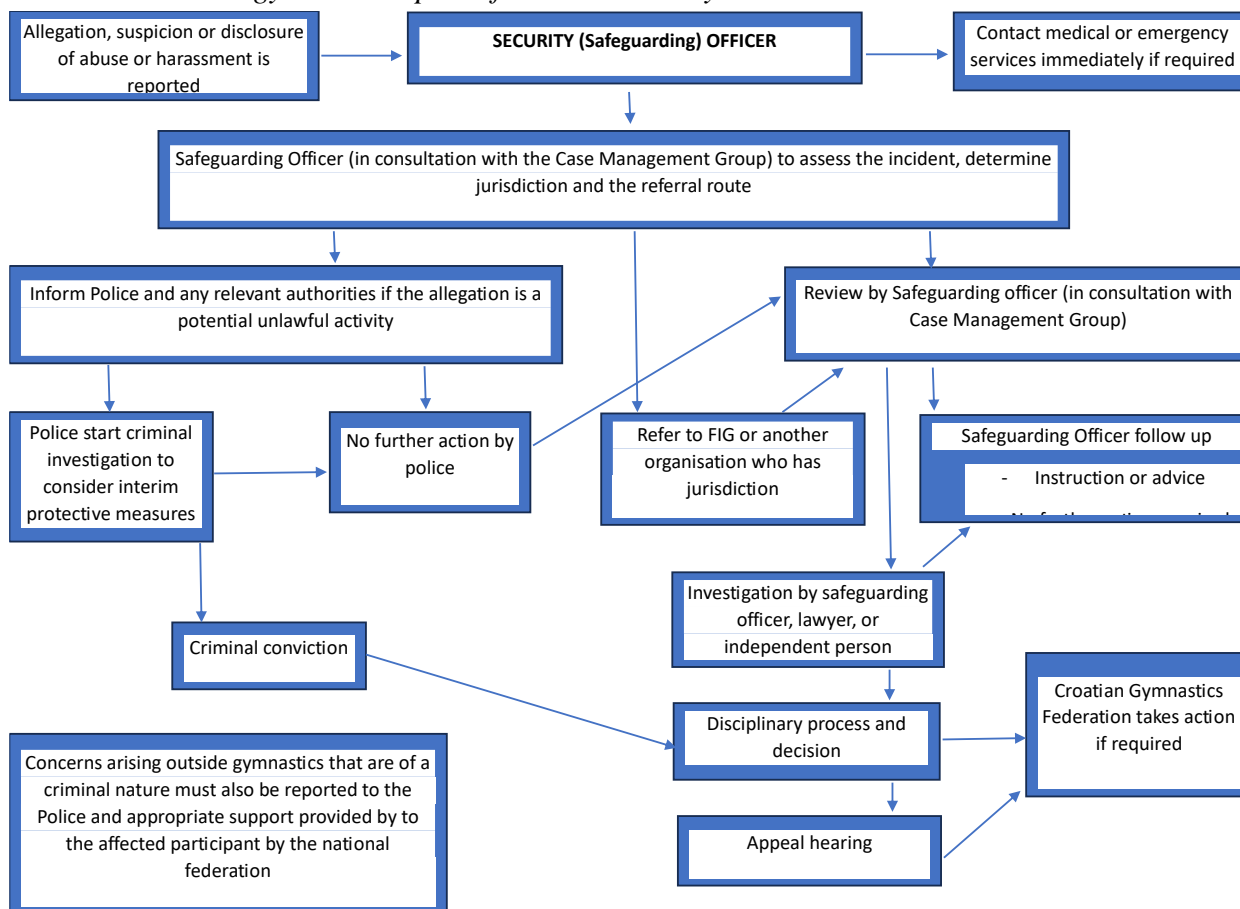
- The Security Officer who receives the report initiates the process of primarily protecting the vulnerable person, including external factors but also internal procedures - prompt suspension of the possible perpetrator because he has in mind the risk of endangering other people, the reputation of the sport or the possibility of obstructing the investigation.
- Investigation procedure: it is important to make it clear that any internal investigation should not compromise any ongoing criminal investigation. Therefore, it is appropriate to wait for the outcome of the criminal investigation before proceeding with the internal investigation. After the completion of the police investigation, the Croatian Gymnastics Federation will conclude the investigation and make a decision.
- If there is a need for an internal investigation, the Croatian Gymnastics Federation will include the procedure of an independent investigator who will need to conduct an investigation within a certain time, which may require detailed information from the police and other relevant investigative bodies. In this case, the independent investigator may request written or oral statements from the relevant parties in the proceedings, taking care of vulnerable witnesses. The independent investigator is obliged to compile a report with the included evidence, which will further represent the basis for the management of the protection and safety of stakeholders in the gymnastics sport to make further decisions in accordance with their acts.

On the next page, a diagram of the management of safety and protection of all stakeholders in the gymnastics sport of the Croatian Gymnastics Federation is presented, which precisely shows the procedure of activities in accordance with the provisions. The diagram is formed according to FIG Guidelines for the National Federation Template Safeguarding Policy and Procedures, [www.fig.com](http://www.fig.com)).

*Figure following on the next page*



*Figure 2: Diagram of the management of safety and protection of all stakeholders in the gymnastics sport of the Croatian Gymnastics Federation*



*Source: Author according to FIG, Guidelines for the National Federation Template Safeguarding Policy and Procedures ([www.fig.com](http://www.fig.com))*

## 8. THE IMPORTANCE OF EDUCATION

By educating all stakeholders, knowledge is achieved that contributes reaching the goal, a sense of security and self-confidence, value and self-respect is encouraged. An educated person is part of a community that grows and progresses, and has a better approach to mastering tasks and solving problems. The Croatian Gymnastics Federation, within the framework of safety management includes the entire membership with constant education about the importance and significance of the freedom and safety of athletes and others in the sport of gymnastics. Education is extremely important and is carried out through panel discussions, case studies, instructions on how to act with the aim of developing awareness and responsibility, breaking fear and prejudice. All members of the Croatian Gymnastics Federation must know that the parent federation enables them to work and develop freely and safely. The members are also obliged to implement a parallel system of protection policy in their micro surroundings. At the same time educational programs through FIG webinars and other gymnastics federations in the world are available the most significant progress has been made in the mandatory licensing of all coaches registered under the International Gymnastics Federation who are required to follow educational courses, take an exam and acquire a "safeguarding" license, without which they cannot be legitimate coaches in international gymnastics.

## 9. CONCLUSION

The IOC firmly believes that harassment and abuse have no place in sport or in society, and advocates for safe sport, as the safety and wellbeing of athletes are paramount. Sport is global, crossing cultures and laws, but there is only one culture that must apply: the culture of respect. Since 2004, the IOC has been developing programmes and initiatives to safeguard athletes from harassment and abuse in sport (<https://olympics.com/ioc/safe-sport>). According to the IOC a safe sport is an environment where athletes can train and compete in a healthy and supportive environment; an environment that is full of respect, equal and free from all forms of harassment and abuse (<https://olympics.com/athlete365/safe-sport/>). Accepting the policy of the IOC as well as the International Gymnastics Federation FIG, the Croatian Gymnastics Federation assumed the responsibility and role of protecting its athletes as well as other stakeholders in the gymnastics sport, united with the rest of the gymnastics world with the aim of preventing and stopping all possible forms of harassment and abuse in sports. Croatian Gymnastics Federation has established safety and security management, policies and procedures for security protection, provided a reporting system, defined procedures. Gymnastics happens to be the first sport in Croatia that established the safe sport policy in order to enable athletes to train and compete in a free, peaceful and healthy environment surrounded by support and encouragement. There must be no place for any form of abuse, injury or neglect in Croatian gymnastics. Imperative is to make a difference creating gymnastics in an environment of equality, respect and freedom.

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# PRODUCTIVITY, RESERVE WAGE AND OPTIMAL DEGREE OF PRIVATISATION IN A PUBLIC MONOPOLY WITH UNIONIZED WORKERS

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## ABSTRACT

*The lieu common states that social welfare is higher under public than private monopoly. This note shows that, in an industry with firm-union bargaining over wages, it is optimal to privatise a share of the public firm because privatisation is a device to curb unionised workers' wage claims. It is also shown that both the reserve wage – which may proxy the manpower's skills level as well as the unemployment benefit system's generosity – and the (exogenous) productivity are relevant in the privatisation policy.*

**Keywords:** *Optimal privatization, Unionised Monopoly, Right-to-Manage Bargaining*

## 1. INTRODUCTION

The privatization issue is currently high on the political agenda in most countries, especially those in transition from a former centralised economy to a free market one. As a consequence, in the last decennia, the study of this subject has generated a broad theoretical literature (see e.g. the reviews of Börs, 1991; De Fraja and Delbono, 1990). In a mixed oligopoly model, a cornerstone result, due to De Fraja and Delbono (1989), is that the privatization of welfare-maximizing public firms can raise social welfare. Nonetheless, those authors also show that a public monopoly is invariably more efficient than the private one. Using a game-theoretic approach, the current literature on mixed oligopolies stresses that a government can strategically use the degree of privatization as a policy tool. In a strategic context in which a public firm competes in the product market with private firms, the government can increase social welfare via partial privatization of the publicly-owned firm (e.g., Matsumura, 1998; and Fujiwara, 2007). Later, the impact of partial privatization on welfare has been analyzed and extended in different contexts (see e.g. Matsumura and Kanda, 2005, for the issue of free-entry markets; and Wang and Lee (2010), and Bárcena-Ruiz et al., 2020, inter alia, for international mixed oligopolies). Maw (2002) conducts an empirical investigation on the evidence as regards the adoption of partial degrees of privatization – and their justifications – focusing on transition economies such as the Post-communist countries. Nonetheless, this literature disregards the issue of wage determination in unionised labour markets. On the other hand, some scholars have carried out an analysis of the wage determination in public firms without including, however, the topic of the optimal privatization (see e.g. De Fraja, 1993; Ishida and Matsushima, 2009). In a recent paper, Fanti and Buccella (2021) have shown that in a public monopoly with unionized workers, the optimal privatisation share increases the higher the union's bargaining power and/or wage-orientation and, when the latter is large, full privatization becomes socially optimal. The optimal privatisation share is maximal when the Government attaches a medium-low weight to the workers' welfare, notably when the union's bargaining power and/or wage-orientation are sufficiently high. This paper further extends Fanti and Buccella (2021) in challenging the established result that social welfare is always higher under public than private monopoly when the labour market is unionised.

It is shown that a strategic partial (and even full) privatisation – i.e., the policy of transforming the public firm into a mixed (public-private) firm in which the government optimally chooses the share to be sold to the private sector - is welfare-enhancing, with a focus on the role of productivity and reserve wages in shaping the optimal privatisation level. Given that a relatively high reserve wage can be also interpreted as a proxy for the presence of high-skilled workers and an advanced unemployment benefit system in a specific industry, our findings also offer testable predictions as regards different economic contexts in which privatisation may be more or less large. The paper is organized as follows. Section 2 presents the basic ingredients of the model and derives the key results. Section 3 closes the paper with some remarks and an outline of the research agenda.

## 2. THE MODEL

Let us consider a market in which a monopolist operates. Following most of the public enterprise literature with competitive labour markets (e.g., De Fraja and Del Bono, 1989) as well as with unionised labour markets (e.g. De Fraja, 1993), we assume decreasing returns to labour. In particular, the production function is  $q = B\sqrt{L}$ , where  $L$  is employment and  $B$  an exogenous labour productivity index. The monopolist meets a standard, linear inverse demand function

$$p = 1 - q, \quad (1)$$

where  $p$  and  $q$  are the price and quantity of the goods, respectively. Thus, the monopolist's profit function is:

$$\pi = (1 - q)q - Awq^2, \quad (2)$$

where  $w$  is the wage per unit of output, and  $A$  is an inverse measure of the index of the labour productivity, that is  $A = 1/(B^2)$ . The workers the monopolist hires are fully unionised, and union members are sufficiently to meet the firm's labour demand. The union utility function is:

$$V = (w - w^\circ)L, \quad (3)$$

where  $w^\circ$  is the reservation or competitive wage, i.e. the union seeks to maximise the total rent. This is a particular case of the Stone-Geary utility function, standard in the unionised industries literature (e.g., Pencavel 1984). Given the production function, eq. (3) can be rewritten as:

$$V = A(w - w^\circ)q^2. \quad (4)$$

The social welfare is a weighted sum of consumers' surplus ( $CS$ ), profit, and union's utility. Following De Fraja (1993) and Fanti and Buccella (2016, 2021), its analytical expression is:

$$SW = CS + \pi + mV^\circ, \quad (5)$$

where  $V^\circ$  is the union's wage-bill value. That is, the public firm maximizes the weighted sum of consumer surplus, profit and the union's utility in which the weight attached to the union's utility,  $m \in (0, 1]$ , is exogenously given (see De Fraja, 1993, and Ishida and Matsushima, 2009,

for the technical and political rationales for adopting this assumption). It is assumed that a share  $z$  of the state-owned firm can be privatised: if  $z = 1$ , then a private monopoly arises; if  $z = 0$ , then a public monopoly occurs. Values of  $z \in [0,1]$  describe a partially privatised public monopoly. Thus, the objective function ( $M$ ) of the monopolist is:

$$M = z\pi + (1 - z)SW = \pi + (1 - z)(CS + mV^\circ). \quad (6)$$

Furthermore, we assume that the monopolist and the labour union bargaining over the wage, while employment is chosen by the firm, i.e. the institutional arrangement is the Right-to-Manage (RTM) (e.g. Nickell and Andrews, 1983).

The game has a three-stage structure: at stage 1, the Government strategically chooses the optimal share of privatization of the monopoly by maximising its social welfare function in (5); at stage 2, monopolist-labour union negotiations under RTM determine the wage level; at stage 3, the monopolist chooses its output maximising the objective function in (6). As usual, the game is solved by backward induction. At stage 3, solving the monopolist's profit maximisation problem, one gets the output as a function of the given wage:

$$q(w) = \frac{1}{2A[w - m(w - w^\circ)] + 1 + z[1 + 2Am(w - w^\circ)]} \quad (7)$$

*Remark 1:* if the wage level is exogenously given, then the workers' weight in the social welfare function increases the output the monopolist produces.

At stage 2, under RTM, the monopolist – labour union bargaining unit chooses  $w$  to maximise the generalised Nash product,

$$\max_{w.f.f. \ w} N = (M)^{1-b} (V)^b = \left\{ (1-q)q - Awq^2 + (1-z) \left[ \frac{q^2}{2} + mA(w - w^\circ)q^2 \right] \right\}^{1-b} [A(w - w^\circ)q^2]^b, \quad (8)$$

where  $b$  is the union's bargaining power. Putting (7) in (8), maximisation with respect to  $w$  yields:

$$w = \frac{b + 2Aw^\circ(1 + b - m) + z(2Aw^\circ m + b)}{2A[1 - m(1 - z)]}. \quad (9)$$

Making use of (9), the equilibrium output as a function of  $z$  is:

$$q(z) = \frac{1}{(2Aw^\circ + 1 + z)(1 + b)} \quad (10)$$

*Remark 2:* as expected, analytical inspection of (9) and (10) reveals that wages always increase (resp. decrease) in the workers' weight parameter in the social welfare function (resp. in the privatization share). On the other hand, the privatization share always shrinks output which is independent of the weight of workers' welfare. Moreover, (9) shows that  $z$  reduces wages only if it is accompanied with a positive  $m$ , and the larger  $m$  is, the more intense is the wage-

dampening effect of the privatisation degree (at the limit, when  $m = 0$ , the latter no longer affects wages).

Given Remark 1, the finding that output is always independent of  $m$  depends on: 1) the positive direct effect on quantity and 2) the indirect negative effect of the same parameter on quantity via the wage increase. Those effects exactly offset each other. Therefore, with unionised wage, the concerns of the Government for the workers' welfare do not influence the quantity produced by the public firm. As expected, from Remark 2, it follows that the workers' welfare is reduced (resp. increased) by the privatization (resp. the concerns of Government for it).

Using (9) and (10), the expression of the social welfare as a function of  $z$  is:

$$SW(z) = \frac{z^2 2m[b+1] + z[2Aw^\circ m(2b+1) + b(1+m) + 2-m] + (1-m)(1+b)(1+2Aw^\circ)}{2[1-m(1-z)](1+b)^2(z+2Aw^\circ+1)^2} \quad (11)$$

An analytical inspection of the denominator of (11) reveals that if  $m$  tends to one, then it is socially convenient not to privatise.

Finally, at stage 1, the Government chooses the optimal share of privatization to maximise the social welfare function. Note that, in some cases, at the level of privatization for which social welfare is maximal, profits may be negative; however, opportune lump-sum redistributions ensure the participation also of the private shareholders. This could occur when  $z^*$  is low and  $m$  high, especially for high reservation wage and high productivity levels. The first order condition is:

$$\frac{\partial SW(z)}{\partial z} = 0 \Leftarrow \left\{ \begin{aligned} &z^3 2m^2(b+1) + [z^2 2m + z(1-m)][2Aw^\circ bm + b - 2(1-m)] \\ &- bm(1+2Aw^\circ)(1-m)[2m(Aw^\circ+1) - 1] \end{aligned} \right\} = 0 \quad (12)$$

Because the analytical expression in (12) is not tractable, we run numerical simulations to get the next Result:

**Result 1:** i) the higher the bargaining strength of the union is, the larger the optimal privatization share is; ii) the higher the reservation wage is and the lower the productivity is, the larger the optimal privatization share is.

Figure 1 gives a graphical representation of Result 1, part i), while Figures 2-3-4 depict part ii).

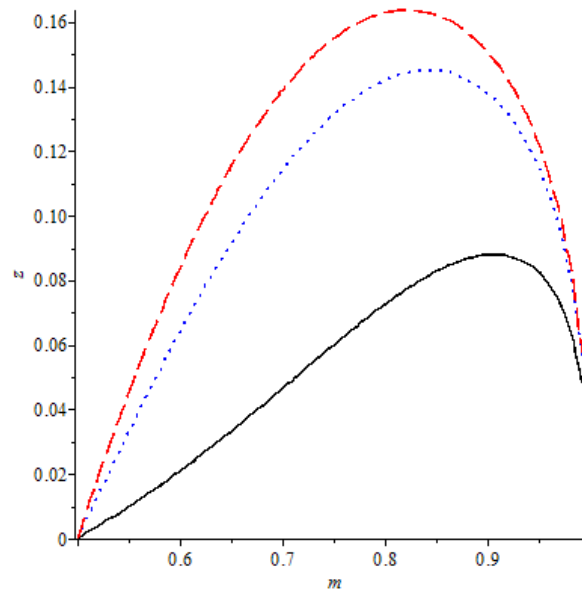
**Corollary.** If unions are weak (resp. strong) or the productivity is high (resp. low) or the reservation wage is low (resp. high) (in particular, if accompanied with high (resp. low) productivity levels), the optimal share of privatization is larger when the interest of the Government for the workers' welfare is higher (resp. medium-low).

Figures 1-4 also give a graphical representation of the Corollary. The intuition behind Result 1 is as follows. For any given level of the Government's care for workers' welfare, privatization can "strategically" be used as a tool to moderate workers' wage demands. Actually, a positive privatization share can be optimal; however, it always decreases the utility of the labour union. That is, privatization can be optimal but not Pareto-superior.

All the Figures show that the optimal privatization function  $z^*(m)$  is always humped. In addition to the graphical representation, a simple numerical example (resumed in Table 1) clearly illustrates Result 1 and the Corollary.

If  $z \rightarrow 0$  and  $m \rightarrow 1$ , then the wage  $w \rightarrow \infty$ . Given that  $q$  is independent of  $m$ , the workers' welfare  $V \rightarrow \infty$  and thus also  $SW \rightarrow \infty$ . On the other hand, when  $m \rightarrow 0$ , the wage is unaffected by privatisation: the optimal value of the latter tends to zero. Thus, the function  $z^*(m)$  tends to assume zero values at the polar values of  $m$ , and is humped.

The examples in Table 1 illustrate the following facts: *i*) when the productivity is relatively high ( $B = 4$ ), the optimal degree of privatisation is always less than 10%, and even zero for low reserve wage and low Government's concerns for workers' welfare.



*Figure 1: Plot of the optimal privatization share  $z^*(m)$  as a function of the weight of the workers' welfare in the social welfare function, for different levels of the bargaining power of the union ( $b$ ) (with  $w^0 = 0$ ,  $B = 1$ ). Legend:  $b = .1$  (black solid line),  $b = .5$  (dotted blue line),  $b = .9$  (red dashed line).*

*(Source: Authors' own calculations)*

*Figure following on the next page*

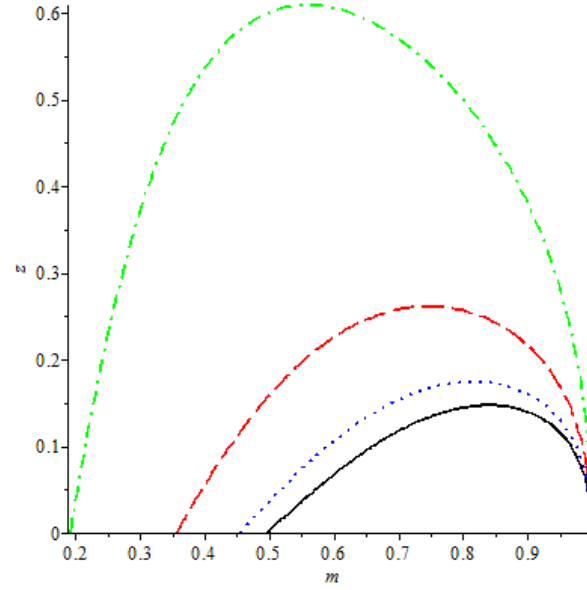


Figure 2: Plot of the optimal privatization share  $z^*(m)$  as a function of the weight of the workers' welfare in the social welfare function, for different levels of the exogenous productivity ( $B$ ) with a fifty/fifty monopoly/union's bargaining power ( $b = .5$ ) and a low reserve wage ( $w^0 = .1$ ). Legend:  $B = 4$  (black solid line),  $B = 1$  (dotted blue line),  $B = .5$  (red dashed line),  $B = .25$  (green dashed-dotted line).

(Source: Authors' own calculations)

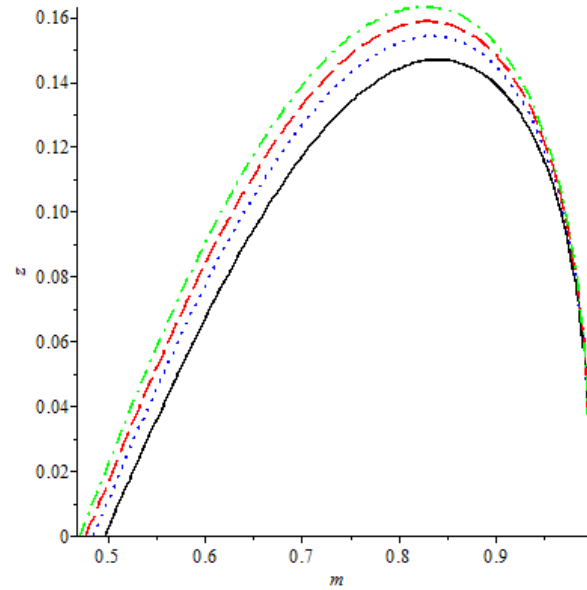


Figure 3: Plot of the optimal privatization share  $z^*(m)$  as a function of the weight of the workers' welfare in the social welfare function, for different levels of the reserve wage ( $w^0$ ) with a fifty/fifty monopoly/union's bargaining power ( $b = .5$ ) and a high exogenous productivity ( $B = .5$ ). Legend:  $w^0 = .1$  (black solid line),  $w^0 = .5$  (dotted blue line),  $w^0 = .75$  (red dashed line),  $w^0 = 1$  (green dashed-dotted line).

(Source: Authors' own calculations)



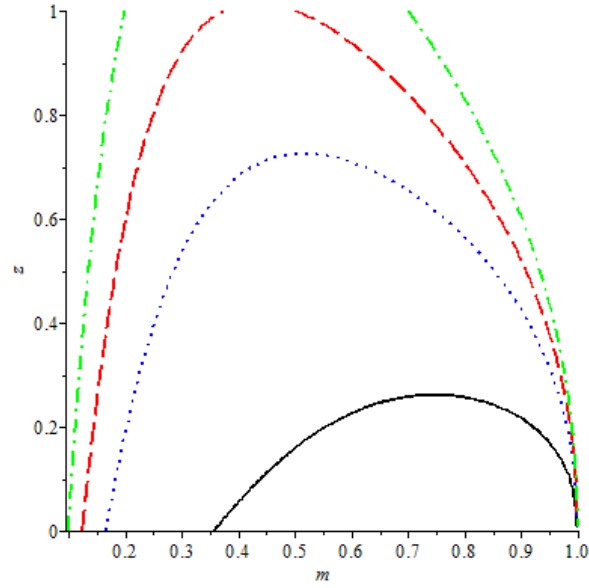


Figure 4: Plot of the optimal privatization share  $z^*(m)$  as a function of the weight of the workers' welfare in the social welfare function for different levels of the reserve wage ( $w^0$ ), with a fifty/fifty monopoly/union's bargaining power ( $b = .5$ ) and a low exogenous productivity ( $B = 4$ ). Legend:  $w^0 = .1$  (black solid line),  $w^0 = .5$  (dotted blue line),  $w^0 = .75$  (red dashed line),  $w^0 = 1$  (green dashed-dotted line)  
(Source: Authors' own calculations).

B=4		$z^* _{w^0=0.1}$	$z^* _{w^0=1}$
b=0.1	m=0.5	0	0.005
	m=0.9	0.089	0.098
b=0.9	m=0.5	0	0.031
	m=0.9	0.153	0.166
B=0.5		$z^* _{w^0=0.1}$	$z^* _{w^0=1}$
b=0.1	m=0.5	0.051	0.78
	m=0.9	0.143	0.475
b=0.9	m=0.5	0.208	1.0
	m=0.9	0.22	0.61

Table 1: Optimal share of privatization for different weight of workers' welfare in social welfare function ( $m = .5, m = .9$ ), for two given polar union's powers ( $b = .1, b = .9$ ) and for two given levels of productivity ( $B = 4, B = .5$ )  
(Source: Authors' own calculations)

On the other hand, when the productivity is relatively low ( $B = .5$ ) the optimal degree of privatisation is larger for all the cases, and even complete privatization may occur; ii) when the Government highly values the workers' welfare (i.e., loosely speaking, a left-wing Government) ( $m = .9$ ), it privatizes more than when it is moderately interested to the workers' welfare ( $m = .5$ ): for instance, in the case of relatively low productivity ( $B = .5$ ), low union's power ( $b = .1$ ) and low reserve wage ( $w^0 = .1$ ), it is optimal to sell to private shareholders about 14.3% of shares when  $m = .9$  against 5.1% when  $m = .5$ .

### 3. CONCLUSION

The findings of this current note show that it is more likely that a Government undertakes a large privatization when the public monopoly has a relatively low productivity, high reservation wage and a Government which highly takes into account into his objective the workers' welfare. Otherwise, in public firms with relatively high productivity and low reservation wage, the degree of privatization - although always relatively smaller than in the case of low productivity and high reservation wage - is expected to be larger when strongly workers' welfare oriented. The empirical implications are that monopolies with 1) high skilled workers and/or with high unemployment benefits; and 2) low productivity are more often privatised. Moreover, the counterintuitive result that, for 1) low unionisation levels; 2) low skilled workers and/or with low unemployment benefits; 3) high productivity; left-wing Governments tend to privatise more emerges. The findings of this paper are far from being exhaustive. In fact, this is suitable of further extension to consider a mixed duopoly with product and price competition with differentiated goods. Moreover, the introduction of R&D investments and consumption externalities are also subjects that call for additional investigation.

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## SHADOW ECONOMY IN TÜRKIYE: IMPACTS AND SOLUTIONS

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### ABSTRACT

*The underground economy, also known by different terms such as the shadow economy, hidden economy, or informal economy, can be briefly defined as economic activities that operate outside the control of the government. Interest in this issue first began in 1936 following legal regulations in France. As governments increase their share of revenue from the economy in the form of taxes, economic entities seek to continue their activities without oversight in an unlawful manner. While taxes play an important role in the emergence of the shadow economy, other factors such as high inflation, income inequality, and distrust in authorities also contribute to its growth. The fact that this issue is considered a problem and remains unresolved keeps it relevant. The substantial portion of GDP originating from the shadow economy can create challenges for economic policies. In Turkey, economic factors, especially taxes, have an important impact on the shadow economy. In 2021, the share of tax revenue in GDP was determined to be 22.82% (OECD, 2021). Each country has its own strategies for combating the shadow economy based on its social and economic conditions. In this study, factors contributing to the shadow economy in Türkiye and planned measures by the government are discussed.*

**Keywords:** *Shadow Economy, Informel Economy, Tax Rates*

### 1. INTRODUCTION

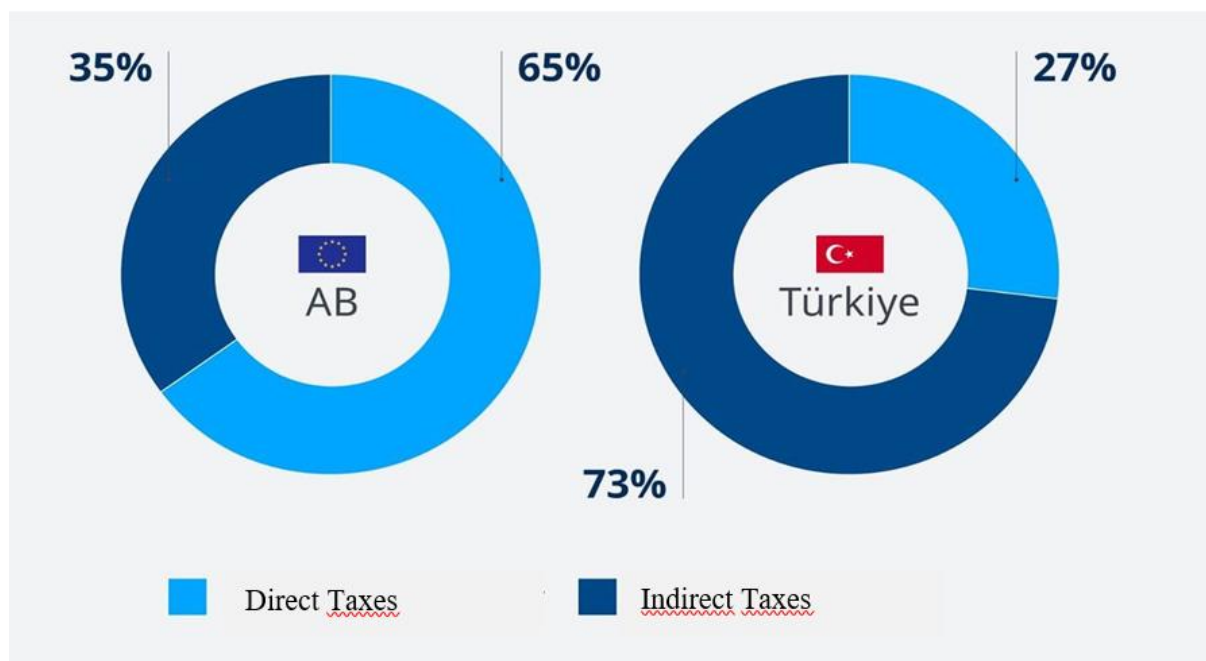
The shadow economy, also known as the unofficial economy, hidden economy, unobservable economy, gray economy, or black economy, is a term that refers to economic activities that are not subject to official records and regulations, often involving illegal or unreported economic activities. Due to the varying nature of activities carried out in different economies and the shifting focus of research on this topic, there can be difficulties in providing a standardized definition throughout the literature. The use of multiple terms for the concept of the shadow economy is evidence of this. For example, terms like shadow economy, underground economy, and hidden economy are used to describe unreported economic activities. Additionally, terms such as black economy, gray economy, and underground economy are often used when referring to illegal activities (GIB, 2009: 3). Schneider (2000a), in his study where he used the term underground economy instead of the shadow economy, defined this concept as all economic activities that contribute to the Gross Domestic Product (GDP). Public authorities naturally focus primarily on sales or income that are not reported for tax or regulatory purposes, while statisticians are more concerned with economic activities that do not officially contribute to the official Gross Domestic Product (Smith, 1994: 3). In the art of meeting unlimited needs with limited resources, which we define as the economy, authorities strive to maintain balance, but a significant portion of the GDP being composed of the shadow economy creates challenges. In developing countries, the share of the shadow (informal) economy within the official economy (approximately 30%) is generally higher than in developed countries (approximately 15%) (HBM, 2022: 3). Worldwide, countries are taking measures through macroeconomic policies to struggle the shadow economy. In this context, the study first provides general information about the shadow economy and its causes, and then examines the measures planned to decrease the shadow economy in Türkiye.

## 2. FACTORS AFFECTING THE SHADOW ECONOMY

The causes of the shadow economy can be complex and diverse. However, if we list them from the most accepted:

- High tax liability and complexity of tax laws,
- High inflation rates,
- Inequality in income distribution,
- Distrust in public institutions and organizations,
- Slow functioning of bureaucracy,
- Corruption,
- Fluctuations in the global economy,
- Reasons such as lack of tax awareness and morality cause the shadow economy to emerge and increase.

When the rate of indirect taxes in the total tax collection is higher than the rate of direct taxes, tax justice is impaired. In cases where real income decreases, an raise in the rate of indirect taxes may lead to deteriorations in income distribution. Yurdakul's (2008) study aimed to identify the factors influencing the informal economy in Turkey among 1985 and 2006. As a result, it was concluded that factors such as the percentage increase in GDP, the ratio of fixed capital investments to GNP, tax burden, and the share of value-added tax in tax revenues have an impact on the informal economy.



*Figure 1: Distribution of Tax Revenues, AB and Türkiye  
(Source: GİB- President Of Revenue Management)*

*Figure following on the next page*

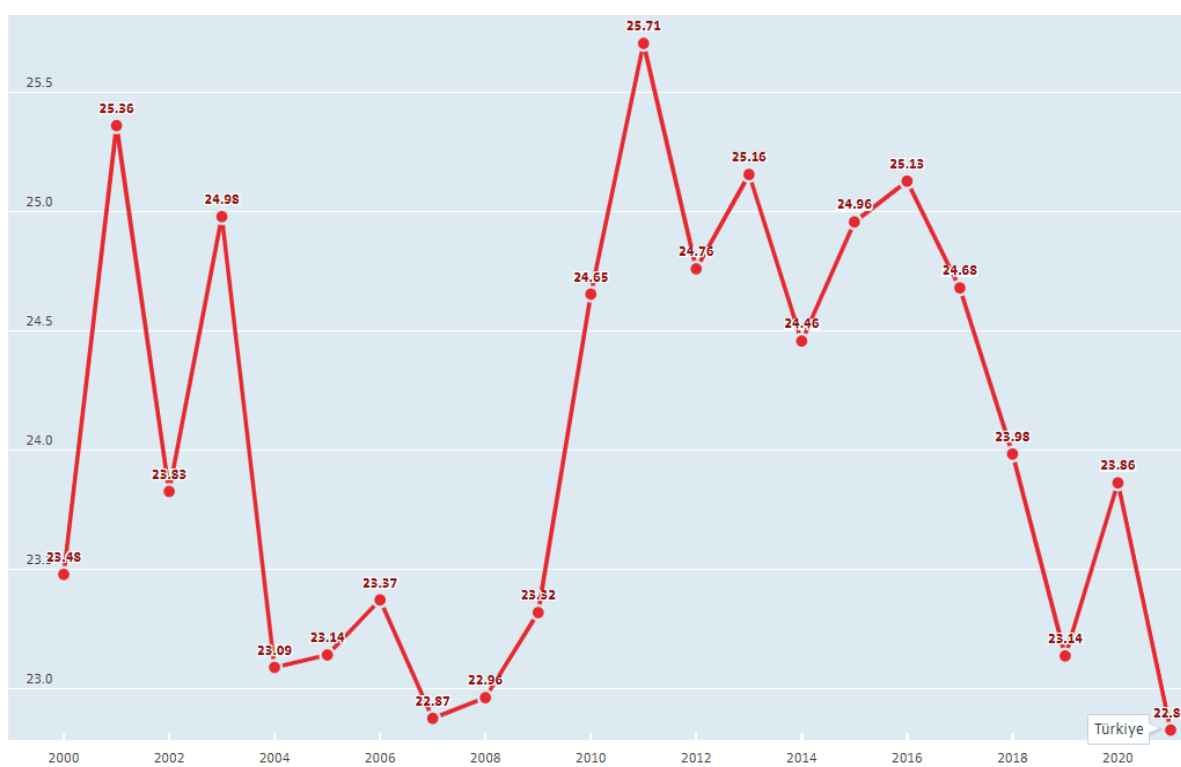


Figure 2: Tax revenue Total, percent of GDP, 2000 – 2021  
(Source: OECD, 2021)

In the year 2021, when considering the ratio of income tax and social security deductions to the gross wage worldwide, Belgium has the highest share with 54.2%. The lowest share belongs to Mexico with 15.4%. Turkey, on the other hand, surpasses 18 OECD countries with a ratio of 42.7%. Kum (2020), in his study aiming to identify the factors leading to the shadow economy in PIIGS (Portugal, Ireland, Italy, Greece, Spain) countries, concluded that tax burden and social security premiums are the most significant reasons. In the literature, there are studies examining the relationship among financial markets and the shadow economy. According to Kapıcıoğlu (2022), an increase in financial development can lead to a reduction in the shadow or informal economy. In a study conducted in Malaysia (Din, 2016: 191), long-term models were developed, indicating that tax burden and unemployment rates strongly raise the size of the shadow economy, and there is an inverse U-shaped curve among the shadow economy and the progress of the financial sector. According to Lyulyov et al. (2021), in their study investigating the driving forces of the shadow economy, a 10% raise in the tax level results in a 1% raise in the informal economy. According to their findings, separate policy measures should be taken for transition economies, and indirect taxes should be reformed to have a higher rate. A government aiming to reduce informal economic activity should first analyze the complex and often contradictory relationships among policy decisions and their outcomes (Schneider, 2000a: 431).

### 3. WHY SHOULD IT BE REDUCED? HOW SHOULD IT BE REDUCED?

Why is the concept of the shadow economy important? Should we be concerned about it? According to Tanzi (1999), there can be no suspicion that the informal economy is a real phenomenon deserving attention and research. It accurately represents the true state of a country's economy. Considering that a country's statistics are used to formulate economic policies, incorrect figures can lead to inappropriate policy responses.

Reducing the shadow economy can indeed increase tax revenues and provide more resources for public services. From an economic growth perspective, the lack of social protections for those working in the informal sector can weaken economic growth. In Turkey, action plans are prepared regularly every year to struggle the shadow economy. Plans have been made to encourage official activities, what needs to be done in regards to working life and tax practices, and to establish tax awareness and tax morale in society. In this regard, the objectives determined within the scope of Turkey's action plan to struggle informal economy (2023-2025) are listed below:

- First of all, scientific methods used to measure the economic dimension of the shadow economy will be developed. In the same direction, tax deficit calculations will be developed on macro and sectoral basis.
- Taxpayer information survey application will be used to measure tax awareness and provide information about the tax law.
- To promote the development of tax and social security awareness at the primary and secondary education levels, continuity will be ensured in the education curriculum.
- Behavioral approach policies will be utilized to enable taxpayers to fulfill their tax obligations in a timely manner.
- Necessary legislative regulations will be made for employers to make wage payments through banks.
- Incentive practices will be implemented to encourage the widespread use of bank or credit card transactions instead of cash.
- Electronic guarantee letter applications will be introduced in tax offices.
- The use of instant payment system Fast will be expanded.

Some of the measures to be taken in the struggle against the shadow economy are mentioned. It should be noted that no matter how many precautions are taken, it is very difficult to achieve the desired goal in countries that do not have tax awareness and tax morale. In Türkiye, the importance of banking-based practices in combating the shadow economy has been highlighted. However, these applications alone will not be adequate. For this reason, applications must have an effective technology-based control system (Şahin, 2023: 195).

#### **4. CONCLUSION**

In Türkiye, economic factors, especially taxes, have an important impact on the shadow economy. Reducing high tax rates, which play a significant role in the growth of the unofficial economy, will significantly decrease the size of the unofficial economy (Yurdakul, 2018: 213). To combat the shadow economy, it is necessary to implement the measures set to address it and leverage digital transformations while doing so. When attempting to figure out the size of the world economy, we are generally guided by official statistics on production, trade, and investment. However, in today's global market, there is a recognized driving force due to its tremendous economic impact: the shadow economy. While the shadow economy may seem like a part of the majority, if not all, of the world's economies, its size varies significantly among countries (Fleming, et al. 2000: 408). Reducing the shadow economy can be a complex process and may require strategies tailored to each country's unique economic and social conditions. Therefore, it is important for each country to implement appropriate policies while taking into account its specific circumstances. Strengthening the rule of law can facilitate access to the formal economy (Singh et al. 2012a; 2012b: 1).

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## CIRCULAR ECONOMY - APPLICATION IN THE TOURISM SECTOR

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### ABSTRACT

*The paper analyses the concept of circular economy, which reduces resource extraction and creates value from waste, and its application in tourism. While tourism undeniably plays a substantial role in driving socio-economic development, its adverse impact on the environment and consumption of natural resources significantly contributes to environmental degradation and pollution. This impact is primarily attributed to the traditional linear take-make-use-dispose model that still characterises businesses in this sector. For that reason, this sector needs to find new strategies to reduce environmental, social and economic costs. Companies operating in the tourism sector are increasingly facing a number of risks associated with linear operations, such as resource availability risks and numerous environmental, regulatory and market risks. Hence, there are compelling reasons for business to transit and participate in the circular economy. Despite the great importance of applying the principles of the circular economy for the further sustainable development of tourism, this field of research is still in its early stages. Therefore, this paper aims to present a circular economy model in the tourism industry. The paper's main contribution is to offer practical examples of circular solutions in tourism in addition to the contextual comprehension of circular tourism. It has been demonstrated that there is a significant area for advancing circular approaches, which can contribute to increasing consciousness among tourists and within the tourist companies, not relying solely on mere sustainability but incorporating greater awareness, driving the creation of tourism offerings and services aligned with circular economy principles.*

**Keywords:** *circular economy, circular solutions, circular tourism, tourism*

### 1. INTRODUCTION

Tourism is one of the world's major economic sectors. With related activities, this sector made a substantial contribution of 7.6% to the worldwide GDP in 2022 (WTTC, 2023), while for certain nations it makes up more than 20% of their GDP. Ranked as the third largest export sector on a global scale, tourism has a significant influence in the development dynamics. Moreover, this sector plays an important role in job creation, supporting one out of every ten jobs (WTTC, 2023). However, beyond its positive aspects, the tourism sector also generates various negative environmental and social impacts due to its adherence to the model of linear economy. In this model, products become waste and are disposed of when they no longer meet consumers' needs. These adverse effects from the tourism sector highlight the necessity for tourism to be well-planned, managed and monitored (Girard & Nocca, 2017).



Considering that this sector needs to find new strategies to reduce environmental, social and economic costs, the circular economy (CE) emerges as a potential model able to contribute to that goals since it transforms the linear system into a loop or circular system. Creating new processes aligned with the CE principles, aimed at reducing resource extraction and deriving value from waste, is crucial in establishing a sustainable tourism environment (Pan et al., 2018). Despite its significance, most circular economy literature has been tailored towards the manufacturing sector, with limited focus on its application in the tourism sector (Rodríguez et al., 2020). Furthermore, concepts like sustainable tourism and eco-tourism seem to gain more attention, with far more practical examples available (Pattanaro & Gente, 2017). Considering this gap in the literature, and the great importance of the CE for the future of tourism, each paper may contribute to a better understanding of the issues and help practically integrate CE principles within a modern economy (Rudan, 2023). Therefore, this paper aims to contribute to a better understanding of the circular tourism phenomenon by exploring relevant literature and providing examples of how CE principles can be implemented in practice.

## 2. CIRCULAR ECONOMY

The term CE was first mentioned in 1966 in the book "The Economics of the Coming Spaceship Earth" written by Kenneth E. Boulding, where it is pointed out that the Earth is a closed economic system in which the economy and the living environment are not linearly but circularly connected. The roots of this concept can also be found in General Systems Theory (Von Bertalanffy, 1968), and a significant contribution to its development in the early stages was made by Pearce & Turner (1989). These authors warned that the traditional linear economy, based on the principle of "take-use-dispose", is not sustainable and must be replaced by a circular system because many natural resources are non-renewable, which raises the question of the finitude of their exploitation period and further sustainable development. The non-profit organisation The Ellen MacArthur Foundation, founded in 2010 to encourage the transition to a circular economy, is largely responsible for popularising the CE concept. Today, the circular economy is attracting increasing attention from scientists, practitioners and public policymakers. There are a number of different definitions of the circular economy in the literature. The reason for this should, first of all, be sought in the multidisciplinary nature of the concept, which is why it is not easy to encompass the numerous economic, social and ecological aspects of sustainability on which it is based with a single definition. The number and diversity of definitions reflect the different understandings of the circular economy (Ghisellini, Cialani, & Ulgiati, 2016). Kirchherr et al. (2017) analysed as many as 114 definitions in their work, from which it is evident that their common denominator is the desire to use resources as best as possible, although it is not fully clarified what 'better' means (Velenturf & Purnell, 2021). This is why the CE concept remains open to interpretation. However, most definitions start from the 3R principles (Table 1). In recent times, these principles have been expanded with additional activities, for example, 4R (reduce – reuse – remanufacture – recycle), 6R (reuse – recycle – redesign – remanufacture – reduce – recover) or 9R (refuse – rethink – reduce – reuse – repair – refurbish – remanufacture – repurpose – recycle).

Reduce	To minimise the input of primary energy, raw materials and waste through improving production and consumption processes efficiency.
Reuse	Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.
Recycle	Any recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes. It includes reprocessing organic material but does not include energy recovery and reprocessing into materials that are to be used as fuels or for backfilling operations.

*Table 1: 3R principles of CE  
(Source: EU, 2008)*

Kaszás et al. (2022) summarised the following terms that appear most often in the available definitions: more rational use of resources, extended lifetime, recycling, restoration of natural systems, productivity, flow in a closed loop, economic development and waste management. Some scientists interpret the circular economy as a new business model for a sustainable economy and a healthy society (Kirchherr et al., 2017), which means that it is also applicable to service sectors. Finally, The Ellen MacArthur Foundation (2013, p. 25) offers the most cited definition: "CE is an industrial economy that is restorative by intention and design. It replaces the 'end-of-life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems and, within this, business models." The implementation of the circular economy occurs at three levels: micro (products, companies, customers), meso (supply chains) and macro (cities, regions, nations, government), and its application leads to numerous benefits for all actors in society. In the literature, these advantages are often divided into environmental and economic (Bourguignon, 2016). The basic premise of the relationship between nature protection and profit is that by taking care of the environment, savings can be achieved, and profits can be increased. However, neither decision-makers nor the private sector are yet sufficiently aware of the advantages of such a way of managing resources. The main environmental advantages are a significant reduction in greenhouse gas emissions and lower consumption of natural resources. Economic benefits derive from new technologies and business models used by the business sector for more rational management of resources and refer to more effective risk management in the supply chain, reduction of costs and import dependence, creation of new jobs, and increased competitiveness. However, the shift from a linear to a circular model encounters obstacles due to various factors (Martínez-Cabrera & López-del-Pino, 2021): tax system continues to favour the linear economy over CE, reluctance to collaborate in industrial symbiosis, there is a lack of trust across the value chain, and a notable absence of awareness and interest in adopting more sustainable economic practices persist.

### **3. TOURISM AND THE CIRCULAR ECONOMY**

Tourism is a sector that plays a massive role in the socio-economic development of society. However, at the same time, by putting pressure on the environment and consuming natural resources, it significantly contributes to environmental degradation and pollution since business in this sector is still traditionally carried out according to the linear take-make-use-dispose model (Manniche et al., 2019). The direct and indirect harmful impact of tourism on the environment can be illustrated by the following facts (Kaszás et al., 2022, p.70):

- the tourism industry is responsible for 8% of the global CO<sub>2</sub> emissions;
- the industry uses a large number of products, which often infer delivery and plastic packaging (over 80 per cent of the plastic entering the marine environment comes from land-based sources, and 5 per cent originates from beaches);
- tourism facilities claim a significant amount of energy and raw materials;
- tourism facilities (swimming pools, spa and wellness facilities, golf courses) need extra amounts of water (direct water use varies from 80 to 2000 L per tourist per day);
- air travel is considered the main tourism contributor to global warming.

At the same time, companies operating in the tourism sector face a number of risks associated with linear operations, such as resource availability risks and environmental risks. There are regulatory risks that include increasingly stringent environmental regulations and standards that disrupt traditional business models, as well as market risks as tourist demand for sustainable products and services grows. Despite the great importance of the circular economy for the future of tourism, this topic is still unexplored, and the number of published relevant works is limited.

Renfors (2022) made a comprehensive review of the literature in the citation databases Web of Science (WoS) and Scopus and identified only 40 works published in the period from 2010 to 2022 which connect the circular economy and tourism. At the same time, an increasing number of authors are warning about the importance of researching the issue in question (e.g. Jones & Wynn, 2019; del Vecchio et al., 2022) and precise guidelines for the analysis of the tourism sector in the context of the circular economy still do not exist (Rodríguez et al., 2020a). Girard and Nocca (2017), who were the first to present the concept of circular tourism, contributed significantly to developing awareness of the importance of applying the circular economy in tourism. They define it as tourism capable of producing goods and services without losing limited resources (raw materials, water, energy), thus limiting its harmful impact on the environment and adopting responsible approaches to its further development. The authors also note that circular tourism is different from green tourism. The latter focuses on limiting the consumption of non-renewable energy sources, while in circular tourism, the keywords are reuse, redesign, recycle, valorise, restore and similar. A literature review on circular economy and tourism points to several research directions. Some authors (e.g. Girard & Nocca, 2017; Pattanaro & Gente, 2017; Vargas-Sanchez, 2018; Manniche et al., 2021) deal with general topics related to the implementation of the circular economy in tourism, emphasising its importance for sustainable development. Prideaux et al. (2020) and Martinez-Cabrera & Lopez-del-Pino (2021) deal with the above issue in the context of the COVID-19 pandemic, proposing a transition to a circular economy as a recovery strategy. The second line of research refers to tourists' attitudes, habits and practices related to the circular economy. As stated by Sørensen et al. (2020), tourists are co-producers, co-performers, and co-creators of tourism experiences since, in most cases, they are present or even participate in creating the service. That is why their role in applying CE principles is significant. It is up to the creators of the tourist offer to create awareness raising programs for tourists, enlightening them about their resource consumption and the consequential environmental effects, as well as to encourage a shift in mindset concerning waste generation and the potential for its recycling or reuse. Research conducted by Rodriguez et al. (2020b) showed that 86.5% of tourists on vacation carry out circular economy practices that they would otherwise carry out at home (e.g. saving energy, separating waste by type into special containers, etc.). An earlier study conducted by the Tripadvisor research team showed that 62% of travellers consider the accommodation facility's concern for the environment when booking accommodation. However, their willingness to pay a slightly higher price for accommodation in such facilities is significantly related to nationality and age (Juliao et al., 2020; Rodriguez et al., 2020b). Additionally, the studies have also examined the government's involvement in this process and proposed new governance models (Rodriguez-Anton & Alonso-Almeida, 2019; Vatansever et al., 2021). The importance of local and national level public administration in advancing the CE is thought to be crucial, with top-down government-driven support, encompassing timely legislation and regulatory frameworks, being seen as a catalyst for expediting advancements. Finally, more and more authors are proposing concrete solutions in tourism that can contribute to the ultimate goal - sustainability, using circular economy tools. The research in these works was mostly carried out at the micro level, and the circular business models, strategies and practices that the authors analyse or propose relate mainly to energy saving or waste management.

#### **4. CIRCULAR PRACTICES IN THE TOURISM SECTOR**

Circular practices in the tourism sector cover areas such as (Florido et al., 2019):

- respecting the limitations of the destination (minimising the impact on nature and culture);
- support the local economy;
- carry out environmentally sustainable activities;
- actively contribute to the conservation of nature and culture; etc.

Thus, circular strategies would encompass enhancing the development of tourism infrastructure and elevating the standard of destination services, alongside decreasing the seasonal fluctuations in tourist offerings and broadening the spectrum of tourism activities with a circularity approach. This does not always require novel technological solutions because, in some cases, circular principles such as long-life circles have been used (Manniche et al., 2021). As the most obvious form of application of circularity in tourism, most authors in the available literature single out sustainable hotels and various CE solutions that are applied to them, such as: measures to prevent food waste (Kasavan et al., 2022); green certificates (Hays & Ozretic-Došen, 2014); increasing use of capacity through shared economy platforms (Akbar & Tracogna, 2018); self-sufficiency (Adams, 2021); implementation of circular agricultural practices that involve local farmers (Florido et al., 2019). When it comes to the previously mentioned 3Rs, Legrand et al. (2016) point out that reusing usually surpasses recycling since recycling often means destroying, while reuse keeps materials in their original form, enabling repeated utilisation for similar or distinct purposes. These authors state various circular practices through reuse applicable to the hospitality industry. Examples of these practices include: repurposing damaged linens, towels, aprons and tablecloths into laundry bags or small covers; replacing disposables such as napkins, tablecloths, and hand towels with reusable alternatives; introducing reusable container systems to minimise shipping expenses; reutilising bottles and glasses, etc. Furthermore, hotels can have substantial influence as consumers of remanufactured goods, fostering demand for such products. Some authors (Florido et al., 2019; del Vecchio et al., 2022) recognise the possibility of applying the circular economy in the hotel industry through new ownership models. In this context, diffuse hotels are mentioned (Kek et al., 2013; Rudan et al., 2021). These hotels consist of (at least three) dispersed accommodation units with a common reception area. The distance between accommodation units and common areas must not exceed 200-300 meters. The local self-government usually organises the management structure of a dispersed hotel through a special organisation that gathers the owners of the accommodation units as dispersed hotel. In addition to sharing resources, a business based on circular economy principles is realised thanks to the fact that the hotel does not consist of newly built accommodation units but rather existing facilities within the historic core of the city or in rural areas, which have been renovated in such a way as to retain their traditional appearance. These spaces were repurposed and put back into use, thus reviving abandoned old town centres and villages and contributing to the development and networking of the local tourist offer. Short supply chains are mentioned in the literature as another solution in tourism that supports the principles of a circular economy. Such chains directly connect local food producers with tourists, which, compared to conventional (longer) supply chains, significantly shortens the delivery time, extends the life of food, and contributes to reducing harmful gas emissions from traffic. Rudan et al. (2021) point out the potential of such solutions in the field of gastro and eno tourism. Wine roads, roads of olive oil, prosciutto or any other for a certain area of indigenous products offer tourists the opportunity to taste such products on the spot, which supports local development and provides tourists with a unique experience. Khodaiji and Christopoulou (2020) additionally propose for hotels creating supply chain sub circles (micro circles) of recycling or reusing products, and aligning with the local community by inducting the local community (to secure buy-in from the local community) and uplifting of locality (e.g. improving roads and planting trees in hotel vicinity). Camilleri (2021) also points out that restaurant owners should be interested in sourcing fresh ingredients directly from local farmers, bakers, and butchers. He underlines the importance of having close relationships with local suppliers and implementing just-in-time purchasing procedures to ensure fresh products. In addition to the hotel sector, great potential for applying circular economy principles is also recognised in cultural tourism (Girard & Gravagnuolo, 2017), and successful examples have already been implemented (e.g. Rudan et al., 2021).

When the principles of circular economy are applied to the restoration and revitalisation of old resources (small historical cities, old buildings, fortresses, castles, etc.), cultural-historical heritage can gain new value and be repurposed for tourism. Application of so-called R activities on abandoned heritage buildings, sites and landscapes contributes in a practical way to the circular urbanterritorial economy, extending the lifespan of heritage assets, providing new uses, and economic opportunities (Gravagnuolo et al., 2017). Besides that, the population has access to preserved cultural-historical heritage and has contemporary values such as employment options, pride concerning traditional values and more. In addition to concrete physical solutions, changing the way of thinking and doing business also play a big role in the transformation towards circular tourism. As an example of good practice, del Vecchio et al. (2022) and Kaszaset al. (2022) mention the online platform Ecobnb, a version of Airbnb that represents a combination of eco-friendly accommodation and authentic experiences of rural tourism and eco-tourism. This platform promotes an authentic way of travelling based on respecting nature and discovering lesser-known destinations. For an accommodation to be listed on Ecobnb, it must meet a minimum of 5 out of 10 defined standards, which contribute to reducing costs and improving the facility's environmental sustainability. Other solutions that imply cooperative business in tourism include online platforms for borrowing goods from the local population that tourists decide not to bring with them, such as bicycles, canoes, hair dryers, and so on. Another activity is to set up a system of inviting tourists to local residents' homes, thus promoting cultural interchange (Florido et al., 2019). Because tourists bring relatively little with them and allow themselves to be immersed in unfamiliar settings, tourism has the ability to experiment with how daily life is organized. It allows tourists to join 'living labs' where they can experience, play with, and fundamentally rethink the organisation of daily life. This is not only interesting from a societal standpoint, but it also represents a market potential for enterprises, operators, and tourism destination organisations. (Manniche et al., 2017, p.47). In the end, it can be concluded that shifting towards circular tourism requires a broader perspective of not just environmental but also of socio-economic issues. There is a large area for the development of circular practices that can effectively raise awareness among tourists and within the company itself. This pursuit is not only aiming at achieving sustainability, but it is incorporating greater awareness, thus driving the creation of tourism offerings and services aligned with circular economy principles. However, it is necessary to consider that the profits of tourism service providers are still largely provided by mass tourism, i.e., the greatest number of guests possible, which is why an extraordinary commitment is required to prioritise circular tourism solutions. Furthermore, tourism circulation cannot be achieved by the actions of a single actor; well-proven symbiosis and industrial cooperation are also required (Kaszaz et al., 2022).

## 5. CONCLUSION

Although it has been recognised by organisations, non-profit service providers, and various stakeholders within the tourism sector that the existing linear approach, due to its significant environmental impact, is no longer tenable, research on circular tourism remains in its infancy. Consequently, this paper aims to introduce a circular economy model into tourism. The paper's primary contribution lies in providing a contextual comprehension of circular tourism and in furnishing practical insights and instances of circular solutions. As presented in the paper, circularity manifests in diverse facets of tourism, spanning rural and cultural tourism, the integration of renewable energy, eco-innovations in hotels and tourists' practices, waste management, and the responsible utilisation of resources. While energy efficiency, waste management, food waste reduction, and reusability remain central focus areas, economic paradigms like leasing and sharing also hold great potential.

Looking to the future, a wide range of academic research issues on the circular economy within the tourism and hospitality industry merit attention. Questions such as how to attract tourists to circular hotels, tourist businesses, and destinations and how to overcome resistance to behavioural, attitudinal, and value-based changes warrant exploration. The marketing of circular tourism services merits heightened attention, with current studies predominantly spotlighting major stakeholders such as accommodation providers, while the transformative potential of "light actors" like travel agencies and their circular transitions also demand attention.

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## UNEMPLOYMENT IN EUROPE AS A CAUSE OF BUSINESS BANKRUPTCY AND A SIGNIFICANT FACTOR IN THE STABLE SUSTAINABILITY OF THEIR EXISTENCE

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### **ABSTRACT**

*The focal point of this paper is the persistently relevant issue of unemployment, which holds social, economic, and political implications impacting the viability and progress of economic entities within the region. This socio-economic phenomenon is pervasive across the European Union member countries. The paper's objective is to scrutinize and assess the status and evolution of unemployment in the EU in recent years, recognizing its significance as a crucial macroeconomic factor influencing the development of businesses, individuals, and society as a whole. The paper aims to pinpoint the most critical regions, conducting an analysis and comparison of selected indicators across different spatial and temporal dimensions. Addressing the challenge of unemployment necessitates proactive engagement with the issue, involving not only public authorities but also businesses and the private sector in the support process. By working together, they can avert the threat of bankruptcy and the demise of many small and medium-sized businesses.*

**Keywords:** *Unemployment, Long-term unemployment, European Union*

### **1. INTRODUCTION**

Unemployment constitutes a macroeconomic phenomenon, prevailing in every economy, characterized by an imbalance between the supply of labor and its demand in the market. It can stem from diverse causes, exerting substantial impacts on all entities within the country's economy. Economists attribute the primary cause of unemployment to a reduction in demand for labor or specific types of work in the labor market. The adverse consequences of unemployment markedly influence the economic well-being of individuals, households, entrepreneurs, and the public sector. The persistent challenge of both short-term and long-term unemployment introduces novel economic, political, and social concerns that necessitate prompt resolution. In the event of unfavorable developments, collaboration with the state apparatus, employees, and employers becomes imperative. Employment holds a substantial status in an individual's life, representing not only a source of financial income but also an avenue for self-realization, recognition, social connections, and social standing. The paper is structured into several sections, each presenting expert viewpoints, scrutinizing and analyzing selected indicators related to unemployment in Slovakia and other European Union countries, and proposing potential measures to alleviate unemployment.

## 2. THEORETICAL STARTING POINTS

Unemployment remains an enduring and ever-present challenge in contemporary European economies. Sujová and Šálka (2016) define unemployment as "a condition in the economy where capable individuals, willing to work, are unable to find employment in the labor market. Only those actively seeking employment are considered unemployed." Labor stands as one of the paramount factors in production and a catalyst for economic growth. In instances of unemployment, the economy operates below its production capacity, signifying underutilized labor and inefficiency in production. Unemployment not only results in economic setbacks but also gives rise to psychological and social issues among individuals. Prolonged periods of involuntary unemployment adversely impact the mental well-being and family life of individuals." Unemployment arises from the loss of employment, leading to immediate changes in various aspects of life. The individual's financial resources are substantially diminished, resulting in a reduced standard of living and an increased reliance on financial aid from the state (Schraggeová, 2011, Miškufová et al., 2022). As per Čaplánová and Martincová (2014), unemployment is a key element in the so-called "magic square", symbolizing macroeconomic equilibrium. Addressing this phenomenon necessitates intervention from the state, as every economic model must strive for equilibrium. Unemployment is not solely an economic and social challenge but also a significant political issue, leading to the forfeiture of goods and services that could be produced by the unemployed if they were employed. In every market economy, a specific level of unemployment is inherent, deemed a natural element of a well-operating economy, capable of optimizing overall economic welfare. This is referred to as the natural rate of unemployment, a state where labor and product markets achieve equilibrium, meaning the number of unemployed is either less than or equal to the number of job vacancies. In this scenario, there is a harmonious balance between the supply and demand for labor. Experts also label the natural rate of unemployment as voluntary unemployment (Lisý et al., 2011, Vaska, 2014). As of 2023, the European Commission reports that nearly half of the unemployed individuals in the Union fall into the category of long-term unemployment, indicating a duration of more than 12 months without employment. The repercussions of long-term unemployment extend to society, resulting in severe social consequences for the individuals affected and exerting a detrimental impact on both economic growth and public finances. Persistent poverty is identified as one of the outcomes stemming from long-term unemployment. Consequently, addressing long-term unemployment emerges as a pivotal employment challenge within the Commission's strategy for fostering jobs and promoting growth. The unemployment rate stands as the commonly utilized metric for comprehending the state of labor market conditions. Economists refer to the labor market concerning both the supply of labor from households and the demand for labor from businesses and other organizations. Additionally, the unemployment rate offers insights into the overall economic performance, rendering it a crucial factor in the contemplation of monetary and fiscal policy. Unemployment arises when an individual is ready and able to work but does not hold a paid job. The unemployment rate is the proportion of people within the labor force who currently lack employment. To calculate the unemployment rate, it is necessary to identify the individuals within the labor force. The labor force encompasses both employed and unemployed individuals. The process of determining employment status involves practical assessments, including considerations like the threshold of paid work required to be classified as employed, and the actual enumeration of individuals who are employed or unemployed (Reserve Bank of Australia, 2023). Economists identify various types of unemployment, with distinctions drawn between primary and secondary forms (Reserve Bank of Australia, 2023):

- Cyclical unemployment is tied to shifts in economic activity during the business cycle. In times of economic decline, a reduced demand for goods and services translates to a scarcity of job opportunities for those ready to work.

Businesses facing weakened demand may respond by laying off existing employees or hiring fewer new workers, making it more challenging for job seekers to secure employment. Conversely, an economic upswing results in strengthened demand, fostering a more favorable job market.

- Structural unemployment arises when there is a disparity between the jobs available and the skills possessed by job seekers, or when the geographical distance between available jobs and job seekers is substantial.
- Frictional unemployment occurs during the transitions between jobs in the labor market and when individuals enter or exit the labor force.

Other forms of unemployment encompass, for instance, underemployment, where individuals are employed but seek and are capable of working additional hours. Hidden unemployment represents individuals not officially categorized as unemployed in formal labor market statistics but likely to work if given the opportunity. Seasonal unemployment occurs during specific periods of the year, influenced by seasonal patterns impacting job availability. Economists are exploring a novel theory that could explain the lack of interest from employers in individuals experiencing long-term unemployment, known as the "skills gap" theory. According to this theory, those who face extended unemployment periods may lack the specific skills sought by employers, potentially due to a decline in their skills during a year or more of unemployment. Interestingly, when considering demographic background and education, the long-term and short-term unemployed share significant similarities. They are present across various age categories, education levels, geographic regions, and income brackets (Van Horn and Heidkamp 2014 in Louie 2014).

### 3. METHODOLOGY

The Central Office of Labour, Social Affairs, and Family determines the unemployment rate by utilizing the records of job applicants registered at the Office of Labour, Social Affairs, and Family. This calculation involves assessing the available number of applicants in relation to the total number of applicants.

$$RUR = \frac{\text{available JS}}{EAP} \times 100 (\%)$$

RUR – registered unemployment rate

JS – job seekers

EAP - economically active population

Starting from 1993, the Statistical Office of the Slovak Republic has been collecting data on unemployment through regular quarterly labor force surveys. Each quarter, a specific number of households are incorporated into the sample, with the sample size varying based on the population of each district. The labor force survey encompasses all individuals aged 15 and above residing in the chosen households.

$$UR = \frac{\text{unemployed}}{EAP} \times 100 (\%)$$

UR – unemployment rate

The European Statistical Office (Eurostat) utilizes both of the aforementioned data sources monthly to establish an internationally comparable unemployment rate.

For the subsequent analysis of selected data across various locations and periods, input data were sourced from the databases of all three institutions mentioned above. In examining the available data in the European region, fundamental methods and indicators of descriptive statistics were employed. For time series analysis, trends were graphically displayed, and the Average Annual Growth Rate was calculated:

$$AAGR = \frac{[(Growth\ Rate)y + (Growth\ Rate)y + 1 + \dots (Growth\ Rate)y + n]}{N(1)}$$

Growth Rate (y) – Growth rate in year 1

Growth Rate (y + 1) – Growth rate in the next year

Growth Rate (y + n) – Growth rate in the year “n”

N – Total number of periods

Since practical data mining problems high-dimensional data are clustered, the resulting clusters are high-dimensional geometrical objects which are difficult to analyze and interpret. A low-dimensional graphical representation of the clusters could be much more informative than such a single value of the cluster validity one can cluster by eye and qualitatively validate conclusions drawn from clustering algorithms. (Abonyi and Feil, 2007). We have used one clustering method, the hierarchical Ward's method. A significant part of these degrees of similarity is based on the calculation of the distance of objects. The Euclidean distance we used is defined by the formula:

$$d_{ij} = \sqrt{\sum_{k=1}^K (x_{ik} - x_{jk})^2}$$

Where  $x_{ik}$  is the value of k variable for *i-th* object and  $x_{jk}$  is the value of k variable for *j-th* object. For calculated distance is then determined the rule of linking statistical units into clusters.

#### 4. RESULTS AND DISCUSSION

In analyzing the chosen data, we adhered to a methodology aligned with the standard approach of the International Labour Organization. The data under examination are sourced from the European Statistical Office (Eurostat) and the Statistical Office of the Slovak Republic, as well as the Central Office of Labour, Social Affairs, and Family. Eurostat defines an unemployed individual as someone aged 15-74 (16-74 for Spain and Italy) who was without employment during the reference week, is prepared to commence work within the next two weeks, and has actively sought employment in the preceding four weeks. Eurostat monitors long-term unemployment (lasting more than 12 months) within the same age range. As anticipated, there is a significant variation in the rates of registered unemployment and long-term unemployment among individual member countries. However, the trend in indicators for the observed period from 2013 to 2022 within the European Union is remarkably consistent. The trend graphs and values of the average annual rate presented in Tables 1. – 4. illustrate the average annual decline in unemployment and long-term unemployment across all national economies. While the overall development of these indicators within the Union can be deemed positive, the results concurrently highlight persistent disparities among different regions of Europe.

Country/Time	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Trend Graph	AAGR
Belgium	8,6	8,7	8,7	7,9	7,2	6,0	5,5	5,8	6,3	5,6		0,9535
Bulgaria	13,9	12,4	10,1	8,6	7,2	6,2	5,2	6,1	5,3	4,3		0,8778
Czechia	7,0	6,1	5,1	4,0	2,9	2,2	2,0	2,6	2,8	2,2		0,8793
Denmark	7,4	6,9	6,3	6,0	5,8	5,1	5,0	5,6	5,1	4,5		0,9462
Germany	5,0	4,7	4,4	3,9	3,6	3,2	3,0	3,7	3,7	3,1		0,9483
Estonia	8,6	7,3	6,4	6,8	5,8	5,4	4,5	6,9	6,2	5,6		0,9535
Ireland	13,8	11,9	9,9	8,4	6,7	5,8	5,0	5,9	6,2	4,5		0,8829
Greece	27,8	26,6	25,0	23,9	21,8	19,7	17,9	17,6	14,7	12,5		0,9150
Spain	26,1	24,5	22,1	19,6	17,2	15,3	14,1	15,5	14,8	12,9		0,9247
France	10,3	10,3	10,3	10,1	9,4	9,0	8,4	8,0	7,9	7,3		0,9625
Croatia	17,3	17,3	16,2	13,1	11,2	8,5	6,6	7,5	7,6	7,0		0,9044
Italy	12,4	12,9	12,0	11,7	11,3	10,6	9,9	9,3	9,5	8,1		0,9538
Cyprus	15,9	16,1	15,0	13,0	11,1	8,4	7,1	7,6	7,5	6,8		0,9099
Latvia	11,9	10,9	9,9	9,7	8,7	7,4	6,3	8,1	7,6	6,9		0,9412
Lithuania	11,8	10,7	9,1	7,9	7,1	6,2	6,3	8,5	7,1	6,0		0,9276
Luxembourg	5,9	5,9	6,7	6,3	5,5	5,6	5,6	6,8	5,3	4,6		0,9727
Hungary	9,8	7,5	6,6	5,0	4,0	3,6	3,3	4,1	4,1	3,6		0,8947
Malta	6,1	5,7	5,4	4,7	4,0	3,7	3,6	4,4	3,4	2,9		0,9207
Netherlands	8,2	8,4	7,9	7,0	5,9	4,9	4,4	4,9	4,2	3,5		0,9097
Austria	5,7	6,0	6,1	6,5	5,9	5,2	4,8	6,0	6,2	4,8		0,9811
Poland	10,6	9,2	7,7	6,3	5,0	3,9	3,3	3,2	3,4	2,9		0,8659
Portugal	17,2	14,6	13,0	11,5	9,2	7,2	6,7	7,0	6,6	6,0		0,8896
Romania	9,0	8,6	8,4	7,2	6,1	5,3	4,9	6,1	5,6	5,6		0,9486
Slovenia	10,1	9,7	9,0	8,0	6,6	5,1	4,4	5,0	4,8	4,0		0,9022
Slovakia	14,1	13,1	11,5	9,6	8,1	6,5	5,7	6,7	6,8	6,1		0,9111
Finland	8,3	8,7	9,4	8,9	8,7	7,5	6,8	7,7	7,7	6,8		0,9781
Sweden	8,2	8,1	7,6	7,1	6,8	6,5	7,0	8,5	8,8	7,5		0,9901
Average EU-27	11,5	10,8	10,0	9,0	7,9	6,8	6,2	7,0	6,6	5,8		0,9276
Median EU-27	10,1	9,2	9,0	7,9	6,8	6,0	5,5	6,7	6,2	5,6		0,9247
Maximum EU-27	27,8	26,6	25,0	23,9	21,8	19,7	17,9	17,6	14,8	12,9		0,9901
Minimum EU-27	5,0	4,7	4,4	3,9	2,9	2,2	2,0	2,6	2,8	2,2		0,8659

Table 1: Total unemployment in the age class from 15 to 74 years in the EU [Percentage of population in the labour force]  
(Source: authors according to Eurostat, 2023)

Over the past decade, Poland demonstrated the most substantial reduction in the number of unemployed individuals among the Member states, with an average decrease of approximately 13.5%, denoted by the AAGR of 0.8659. Following closely were Bulgaria and the Czech Republic, both experiencing an average decrease of around 12%. Among the Visegrad Group countries, Slovakia exhibited the slowest average decline in this indicator. Greece and Spain exhibit the highest long-term unemployment rates in the Union, while the Czech Republic notably has the lowest. Across the European group of twenty-seven, the observed unemployment rate has, on average, decreased by approximately 7% over the last decade. Luxembourg, among the Member states, has maintained a stable level of unemployment for an extended period. Norway, Iceland, and Switzerland recorded the lowest unemployment rate among the non-EU countries studied in the interval of years, the highest in North Macedonia. Only Turkey recorded an AAGR higher than 1, which means an average annual growth of the monitored indicator of approximately 4.6 percent. Serbia recorded the most positive development over other years (AAGR=0.9003). (Table 2.)

Country/Time	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Trend Graph	AAGR
Iceland	5,4	4,9	4,0	3,0	2,7	2,7	3,5	5,5	6,1	3,8		0,9617
Norway	3,9	3,8	4,7	4,9	4,4	4,0	3,9	4,7	4,4	3,2		0,9783
Switzerland	4,8	4,9	4,8	5,0	4,8	4,7	4,4	4,8	5,1	4,3		0,9879
Montenegro	19,5	18,0	17,6	17,8	16,1	15,2	15,2	17,9	:	:		0,9905
North Macedonia	29,0	28,0	26,1	23,7	22,4	20,8	17,3	16,4	:	:		0,9386
Serbia	24,2	20,7	19,0	16,5	14,6	13,8	11,3	9,8	11,1	9,4		0,9003
Türkiye	8,8	9,9	10,3	10,9	10,9	10,9	13,7	13,2	:	:		1,0461
Average	13,7	12,9	12,4	11,7	10,8	10,3	9,9	10,3	6,7	5,2		0,8978
Median	8,8	9,9	10,3	10,9	10,9	10,9	11,3	9,8	5,6	4,1		0,9174
Maximum	3,9	3,8	4,0	3,0	2,7	2,7	3,5	4,7	4,4	3,2		0,9783
Minimum	29,0	28,0	26,1	23,7	22,4	20,8	17,3	17,9	11,1	9,4		0,8823

Table 2: Total unemployment in the age class from 15 to 74 years outside the EU [Percentage of population in the labour force]  
(Suorce: authors according to Eurostat, 2023)

Ireland (AAGR=0.8183) has witnessed the most substantial reduction in long-term unemployment among the Member States in the past decade, indicating an average annual decline of approximately 18 percent.

Country/Time	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Trend Graph	AAGR
Belgium	3,5	3,9	4,0	3,7	3,1	2,6	2,1	2,1	2,6	2,3		0,9544
Bulgaria	7,9	7,4	6,1	5,0	3,9	3,6	2,9	2,7	2,6	2,3		0,8719
Czechia	3,0	2,7	2,4	1,7	1,0	0,7	0,6	0,6	0,8	0,6		0,8363
Denmark	1,8	1,7	1,6	1,2	1,2	1,0	0,8	0,9	1,0	0,5		0,8673
Germany	2,3	2,2	2,0	1,7	1,5	1,4	1,2	1,1	1,2	1,0		0,9116
Estonia	3,8	3,3	2,4	2,2	2,0	1,3	0,9	1,2	1,6	1,3		0,8876
Ireland	7,9	6,6	5,3	4,2	3,0	2,1	1,6	1,4	1,8	1,3		0,8183
Greece	16,7	17,5	16,4	15,4	14,3	12,5	11,3	10,5	9,2	7,7		0,9176
Spain	13,0	12,9	11,4	9,5	7,7	6,4	5,3	5,0	6,2	5,0		0,8993
France	2,9	3,1	3,1	3,1	2,9	2,5	2,3	1,9	2,3	2,0		0,9596
Croatia	11,0	10,1	10,2	6,6	4,6	3,4	2,4	2,1	2,8	2,4		0,8444
Italy	7,4	8,2	7,4	7,1	6,9	6,5	5,9	5,1	5,4	4,6		0,9485
Cyprus	6,1	7,7	6,8	5,8	4,5	2,7	2,1	2,1	2,6	2,3		0,8973
Latvia	6,3	5,1	4,9	4,4	3,6	3,4	2,7	2,4	2,3	2,0		0,8803
Lithuania	5,1	4,8	3,9	3,0	2,7	2,0	1,9	2,5	2,6	2,3		0,9153
Luxembourg	1,8	1,6	1,9	2,2	2,1	1,4	1,3	1,7	1,8	1,3		0,9645
Hungary	4,8	3,6	3,0	2,3	1,6	1,4	1,1	1,1	1,3	1,2		0,8572
Malta	3,5	2,9	2,7	2,4	2,0	1,8	0,9	1,1	0,9	1,0		0,8701
Netherlands	2,3	2,7	2,7	2,3	1,7	1,2	0,9	0,7	0,8	0,7		0,8762
Austria	1,6	1,9	2,0	2,4	2,3	1,7	1,4	1,7	2,0	1,2		0,9685
Poland	4,5	3,9	3,0	2,2	1,5	1,0	0,7	0,6	0,9	0,9		0,8363
Portugal	9,7	8,7	7,5	6,4	4,6	3,2	2,8	2,3	2,9	2,7		0,8675
Romania	3,9	3,4	3,6	3,4	2,4	2,2	2,0	1,8	2,0	2,2		0,9384
Slovenia	5,2	5,3	4,7	4,3	3,1	2,2	1,9	1,9	1,9	1,7		0,8832
Slovakia	11,6	10,7	8,8	6,8	5,9	4,7	3,9	3,7	3,9	4,1		0,8909
Finland	2,1	2,4	2,9	2,9	2,6	2,0	1,5	1,5	1,8	1,5		0,9633
Sweden	2,3	2,3	2,3	2,0	2,0	1,7	1,5	1,8	2,0	1,9		0,9790
Average EU-27	5,6	5,4	4,9	4,2	3,5	2,8	2,4	2,3	2,5	2,1	x	0,8985
Median EU-27	4,5	3,9	3,6	3,1	2,7	2,1	1,9	1,8	2,0	1,9	x	0,9086
Maximum EU-27	16,7	17,5	16,4	15,4	14,3	12,5	11,3	10,5	9,2	7,7	x	0,9176
Minimum EU-27	1,6	1,6	1,6	1,2	1,0	0,7	0,6	0,6	0,8	0,5	x	0,8788

Table 3: Long-term unemployment in the age class from 15 to 74 years [Percentage of population in the labour force]  
(Suorce: authors according to Eurostat, 2023)

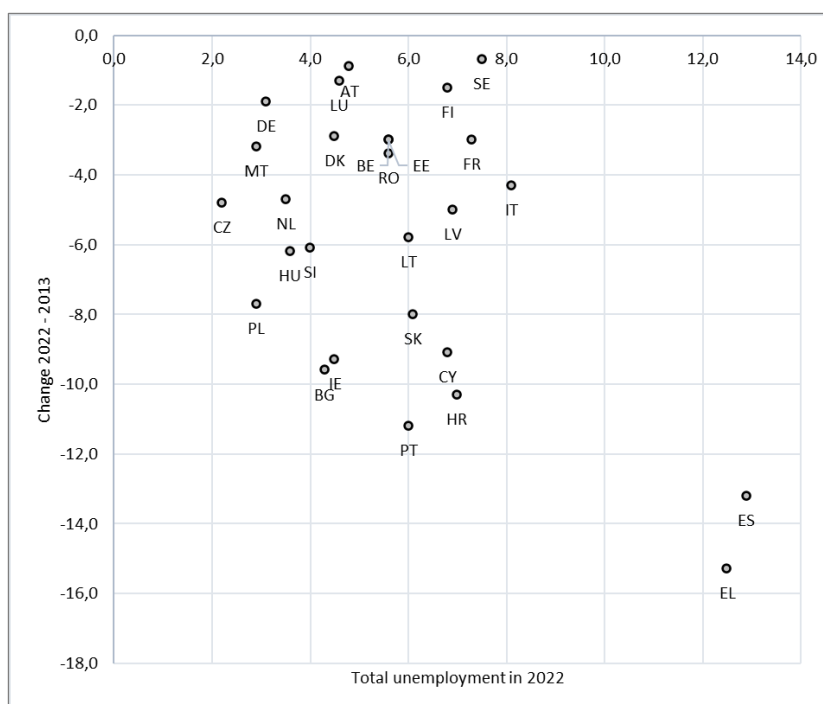
Following Ireland, the Czech Republic experienced an average decrease of around 16%, while Poland and Hungary also demonstrated notable declines. Among the V4 countries, Slovakia exhibited the slowest decrease in this indicator. Over an extended period, Greece, Spain, and Slovakia have consistently shown the highest rates of long-term unemployment in the Union, whereas Denmark, the Netherlands, and the Czech Republic consistently present the lowest levels. Across the EU-27, the observed rate has, on average, decreased by around 10 percent over the last ten years. (Table 3)

TIME	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Trend Graph	AAGR
Iceland	1,0	0,6	0,5	:	0,3	0,3	:	0,5	1,1	0,5		:
Norway	1,0	1,1	1,3	1,6	1,5	1,3	1,1	1,2	1,0	0,6		0,9448
Switzerland	1,5	1,7	1,8	1,8	1,7	1,7	1,5	1,5	1,9	1,5		1,0000
Montenegro	16,0	14,0	13,5	13,4	12,5	11,4	12,0	13,4	:	:		0,9805
North Macedonia	23,9	23,3	21,3	19,1	17,4	15,5	12,4	12,4	:	:		0,9297
Serbia	16,0	12,8	11,0	9,5	7,4	6,7	5,5	4,5	4,9	3,8		0,8524
Türkiye	1,9	2,0	2,2	2,2	2,4	2,4	3,2	3,3	:	:		1,0633
Average	8,8	7,9	7,4	7,9	6,2	5,6	6,0	5,3	2,2	1,6		0,8279
Median	1,9	2,0	2,2	5,9	2,4	2,4	4,4	3,3	1,5	1,1		0,9362
Maximum	23,9	23,3	21,3	19,1	17,4	15,5	12,4	13,4	4,9	3,8		0,8152
Minimum	1,0	0,6	0,5	1,6	0,3	0,3	1,1	0,5	1,0	0,5		0,9259

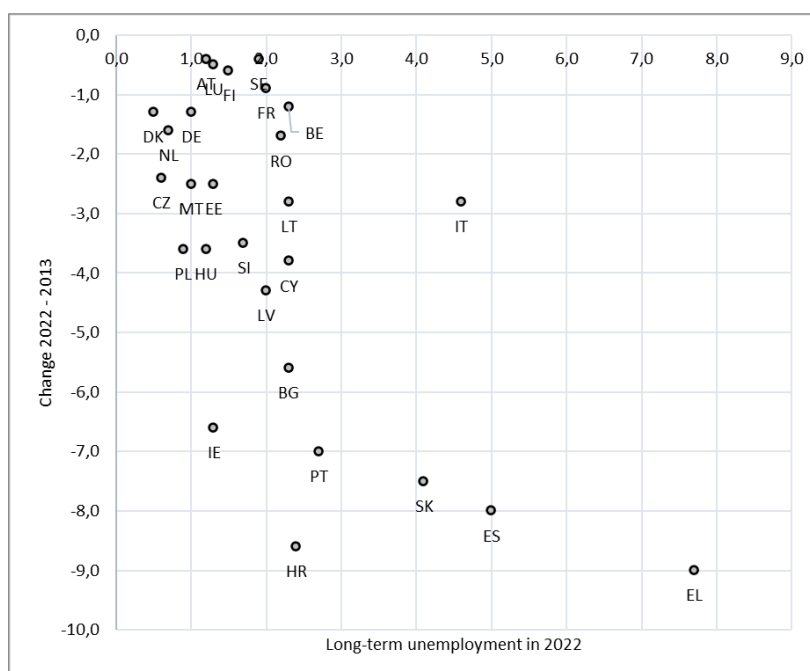
*Table 4: Long-term unemployment in the age class from 15 to 74 years outside the EU  
[Percentage of population in the labour force]  
(Suorce: authors according to Eurostat, 2023)*

Outside of the countries of the European Union, long-term unemployment is mainly in North Macedonia and Montenegro. The height of the indicator is almost negligible in Iceland and Norway, Switzerland reports a stable rate for a long time. Even in this case, long-term unemployment in Turkey alone grew by about 6 percent on average over the last decade (Table 4). In the subsequent graphs 1 and 2, EU member countries are positioned on a coordinate system based on their recorded rates of unemployment and long-term unemployment in 2022 (along the "x" axis) and the alterations in these indicators relative to the reference year 2013. We intentionally selected a decade-long interval between these periods, as it best illustrates the disparities in the countries' positions on the figures. Regarding the monitored unemployment rate for individuals aged 15 to 74, Spain and Greece registered the highest levels in 2022. Simultaneously, a noteworthy observation from the graphical representation is the substantial reduction in overall unemployment in both countries compared to 2013. When compared to the reference year, Sweden, Austria, and Luxembourg notably sustain a consistent level of long-term unemployment relative to the total labor force. Greece, despite having the highest rate of long-term unemployment in 2022, paradoxically holds the best position in terms of the indicator's reduction compared to 2013. In this context, Greece witnessed a decrease of 9 percentage points, followed by Croatia with a decrease of 8.6 percentage points, and Spain with a decrease of 8.0 percentage point. Across all member countries, long-term unemployment has decreased in comparison to 2013, with Austria and Sweden exhibiting the smallest differences.

*Graph following on the next page*



*Graph 1: Total unemployment in the age class from 15 to 74 years [Percentage of population in the labour force]  
(Source: authors according to Eurostat and OECD 2023)*

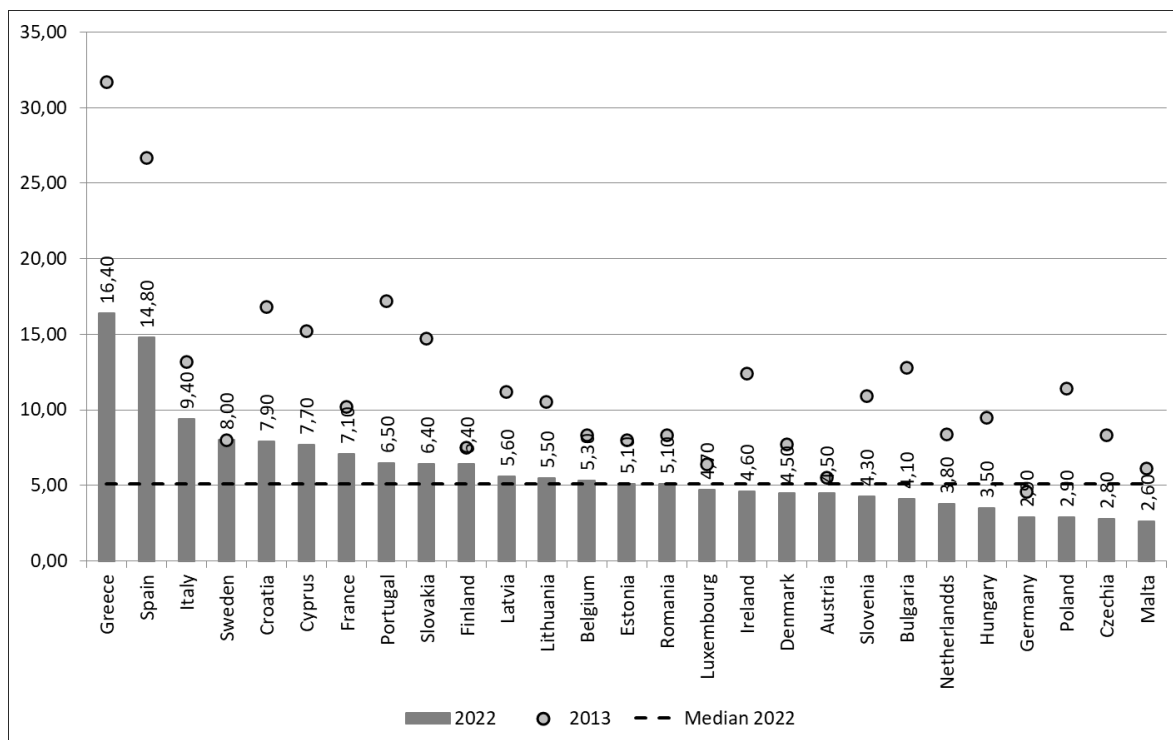


*Graph 2: Long-term unemployment in the age class from 15 to 74 years [Percentage of population in the labour force]  
(Source: authors according to Eurostat and OECD 2023)*

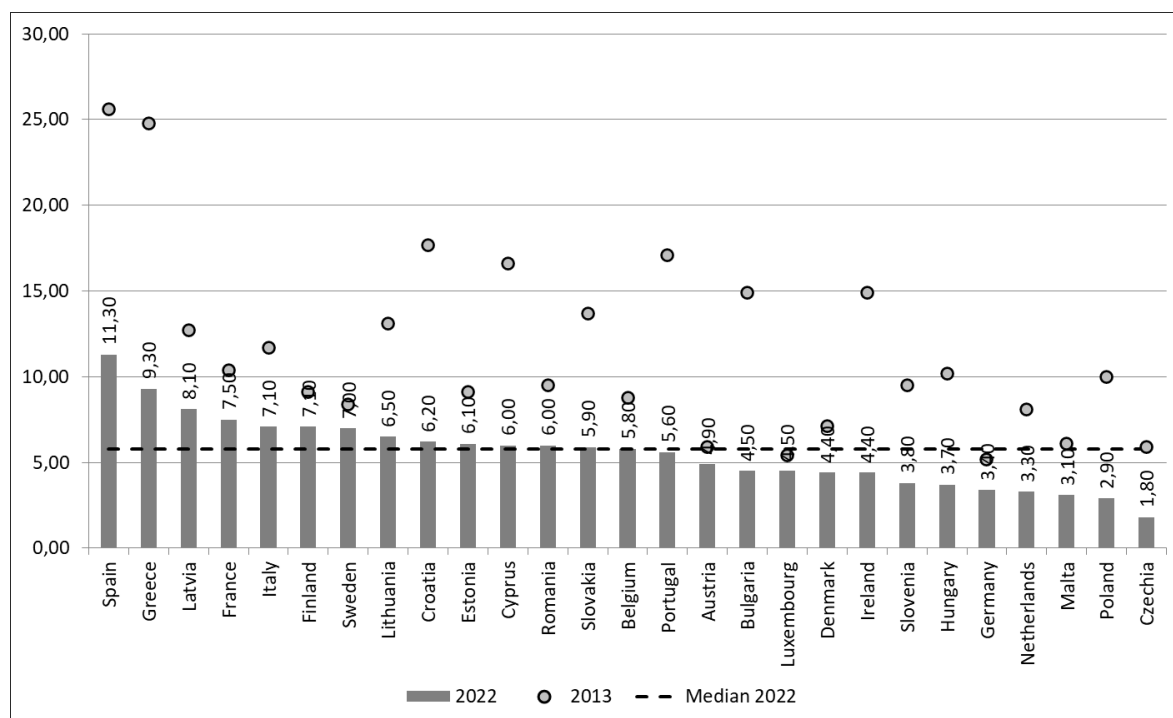
Concerning gender-specific unemployment, Greece, Spain, and Italy have the highest proportions of unemployed women relative to the total labor force, while Malta, the Czech Republic, and Poland have the lowest, as indicated in Graph 3. Encouragingly, there has been a substantial decrease in this indicator across almost all member countries over the past decade.



The median for the European twenty-seven stood at 5.1 percent in 2022, with an average reaching 6.0 percent.

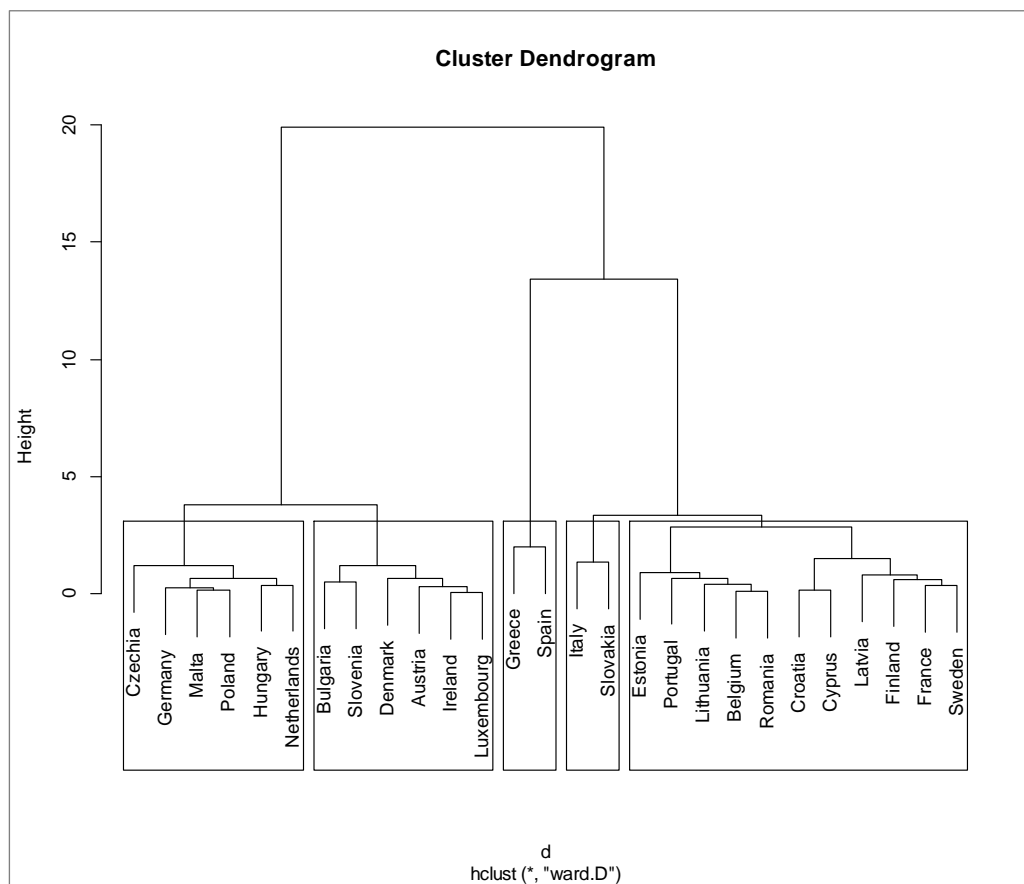


Graph 3: Unemployment rate of women aged 15-74 in the EU [Percentage of population in the labour force]  
(Source: authors according to Eurostat and The World Bank, 2023)



Graph 4: Unemployment rate of men aged 15-74 in the EU [Percentage of population in the labour force]  
(Source: authors according to Eurostat and Statistical Office of SR, 2023)

Slovakia surpassed both of these values in 2022. In terms of male unemployment rates in the European Union in 2022, Spain, Greece, and Latvia reported the highest figures, while the Czech Republic, Poland, and Malta recorded the lowest. Once again, there is a notably positive trend of decreasing this monitored indicator in almost all member states compared to 2013. For men aged 15 to 74, the EU-27 median reached 5.8% in 2022, with an average of 5.7%. Slovakia was positioned near the median of the Union. Cluster analysis aims to reveal mutual similarities between 27 Member States based on further analysis of previous research data. Preceding quantitative and graphical analyzes indicate differences in the development of four selected indicators. Therefore, we decided to use that statistical tool to analyze multidimensional data. The four imputed variables for the Member States were Total unemployment, Female unemployment, Male unemployment, and Long-term unemployment as percentage of population in the labor force in 2022. The objective of cluster analysis was to achieve such groups of states, which would be characterized by certain homogeneity in case of selected indicators.



*Graph 5: Tree diagram according to Ward's method  
(Source: authors)*

Hierarchical clustering methods are sequentially joining clusters, which decrease them continuously into one. The result of clustering is a tree diagram. Ward's method involves an agglomerative clustering algorithm, which looks for groups of leaves and forms branches, and limbs. In the daigram, we can identify two smaller groups of countries and three larger groups with similar characteristics. (Graph 5) A negative finding is the placement of Slovakia among the countries with the worst results in long-term unemployment.

## 5. CONCLUSION

Unemployment is an inherent macroeconomic phenomenon and, concurrently, an incessantly debated social issue with numerous identifiable yet unpredictable causes. It is contingent upon a multitude of factors, including economic elements such as the cost of labor, the dynamics of work supply and demand, the phase of the economic cycle, and investment decisions. Political factors, encompassing the ideological orientation of governments, both liberal and conservative, as well as national and international legislation, tax burdens, and crisis measures, also play a role. Social factors, such as the willingness to work, equity in pension redistribution, the perceived value of work, and the quality and accessibility of education, contribute to the complexity. Additionally, demographic factors, including age, gender, and the educational structure of the population, are influential. The convergence of these individual factors shapes a macroeconomic and microeconomic environment where the demand for labor from companies and organizations intersects with the supply of work from individuals and households. Based on the analysis of selected data regarding unemployment and long-term unemployment, a positive observation emerges—there has been favorable progress in both indicators across all member countries over the past decade. The decline in both the unemployment rate and long-term unemployment is a promising signal. However, only the near future will reveal how individual countries navigate global challenges such as robotization and artificial intelligence, as well as national challenges such as providing high-quality and targeted professional training for practical purposes and ensuring equitable evaluation of women's and men's work. Strategies and decisions implemented at both the European Union and national government levels should adopt a systemic approach, considering consequences that will predominantly manifest in the long term. The issue of enduring regional disparities among various European regions persists and necessitates innovative solutions. This realization is crucial for the leaders of the Union and the highest representatives of Member States. Addressing regional inequalities is a key prerequisite for the advancement of the entire community. Similarly, the imperative to maintain alignment with the trends in the Union's unemployment and long-term unemployment development from previous years applies not only to the regions of Europe but also to Slovakia and its policies in supporting jobs and employment within individual regions. It is imperative not to lag behind and to remain in step with the evolving trajectory of unemployment and long-term unemployment in the Union. Presently, numerous companies (employers) are grappling with a scarcity of adequately qualified labor within domestic labor markets and are consequently looking beyond national borders. This trend increasingly clashes with the efforts and intentions of governments to safeguard the domestic labor market. Finding a compromise, establishing agreements, and fostering mutual support and cooperation are essential in averting the decline or bankruptcy of small and medium-sized enterprises, which significantly contribute to employing a substantial portion of the population. It is imperative to implement measures that facilitate the reintegration of the long-term unemployed into the workforce, thereby providing both new and existing companies with a plentiful and well-qualified workforce.

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## **ANALYSIS OF OPERATIONS AND SERVICE QUALITY AT THE RECEPTION OF CRUISE SHIPS ON EXTERNAL BERTHS IN THE PORT OF SPLIT**

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### **ABSTRACT**

*A significant increase in the arrival of cruise ships in the last decade encouraged the construction of external berths for their reception in the port of Split. The aim of the paper is to analyse the external berths in the port of Split from the aspect of business and service quality, that is, to determine the advantages, disadvantages, potentials and limitations that arise from the construction of external berths and their exploitation. In the paper, descriptive and comparative methods were used to assess the impact of external berths on business and service quality. The impact on business was determined by analysing financial and economic indicators, primarily changes in the number of cruise ship arrivals and the number of arriving passengers after the construction of external berths. Qualitative impacts are described as internal port quality indicators and as the impact of traffic connections between the port and the destination. The research was conducted on the basis of the analysis of port traffic processes and data on the business results of the Split Port Authority. The results of the research show the impact of the construction of external berths through the expansion of reception capacities, which resulted in a significant increase in the number of passengers and the number of cruise ships in the port. It was found that external berths have changed the ship size structure in favour of large and mega cruise ships. The main limitation of service quality development is traffic factors in the port and in the wider city area. The construction and exploitation of external berths increases the potential at the level of all stakeholders in the process of accepting cruise ships, and the increase in the quality of service attracts a larger number of cruise ships and passengers, and thus enables better business results of the port of Split.*

**Keywords:** *external berth, business, service quality, cruising industry, port of Split*

### **1. INTRODUCTION**

Cruise tourism in the port of Split advanced at the beginning of the 21st century. Today, it is the second most important port in the Republic of Croatia with over 30% share of the total number of cruise passengers and cruise ships, with a clearly visible potential as a destination on the Adriatic that is offered by numerous cruise companies [1]. In 2019, the port of Split became the sixth largest cruise destination on the Adriatic [2]. Figure 1 shows the share of cruise destinations on the Adriatic Sea in 2019.

*Figure following on the next page*

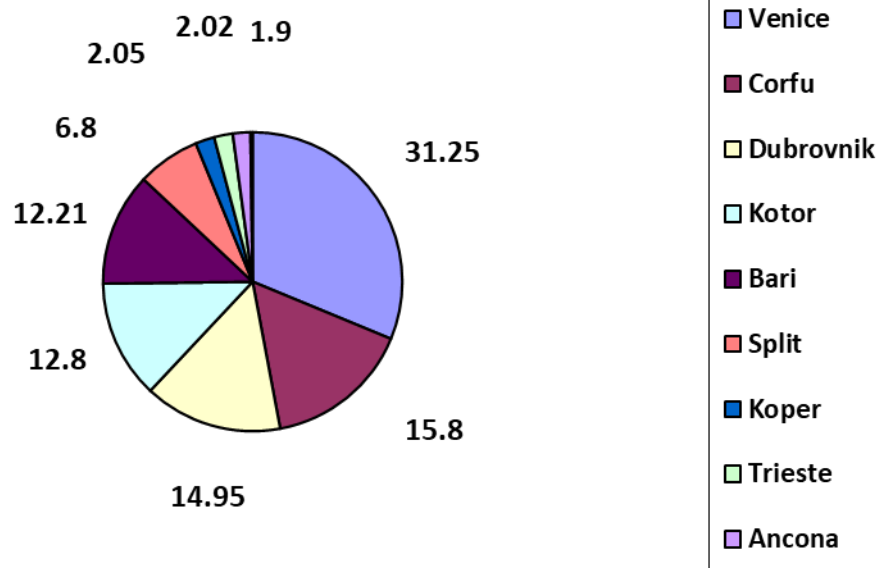


Figure 1: The distribution of the first 10 cruise destinations among the Adriatic ports [2, mod.]

With the increasing interest of cruise companies in Split as a destination on their itineraries, the port of Split faced the challenge of limited capacity, therefore the construction of external berths was imposed as a solution that offers quantitative benefits in terms of capacity, but also qualitative ones when it comes to the service of accepting cruise ships. For this reason, a bank was built in the port of Split on the south side of the breakwater for the purpose of accepting ships up to 320m in length (Figure 2). In addition to passenger ships and cruise ships, it is also possible to accept ro-ro passenger ships and high-speed ro-ro passenger ships.

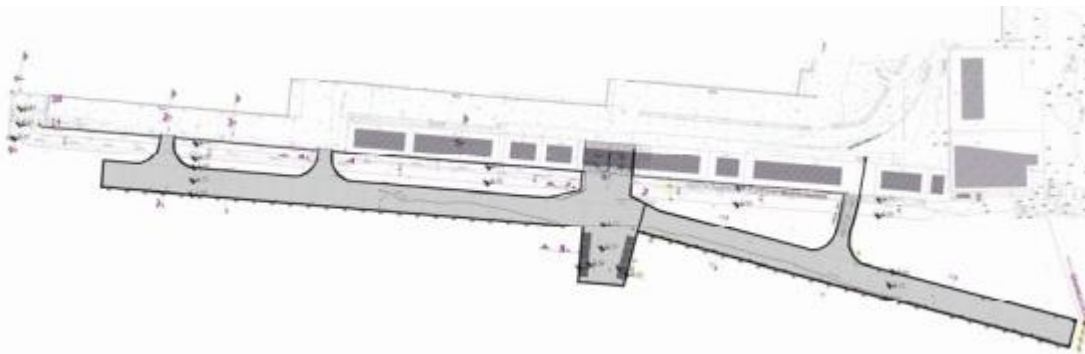
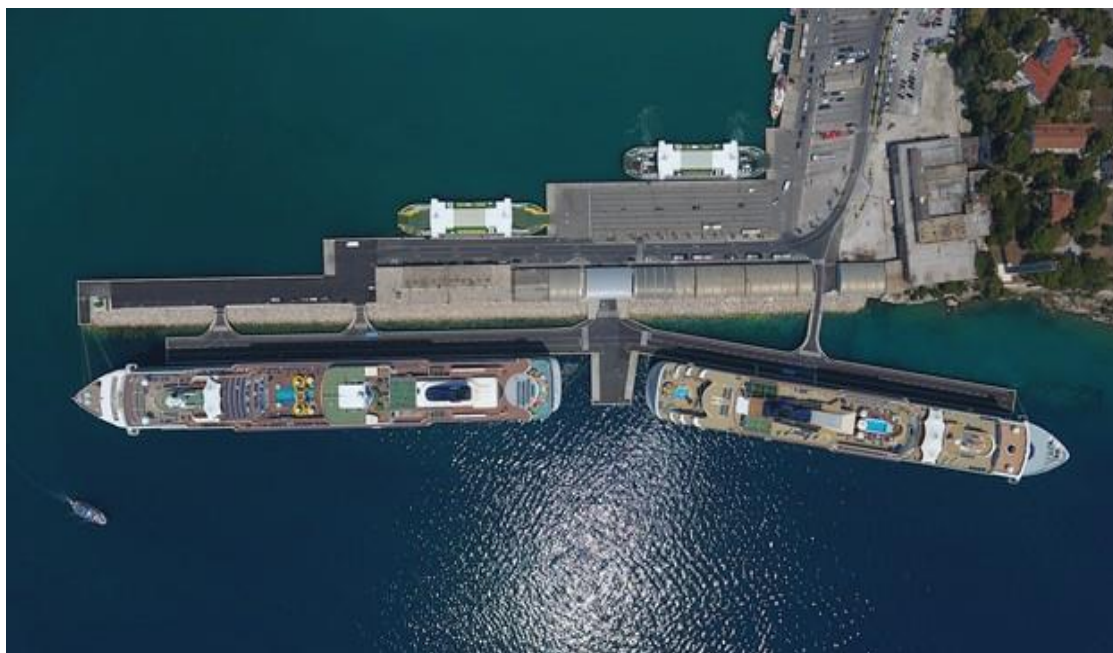


Figure 2: Conceptual solution for the construction of the coast on the southern side of the breakwater [3]

At berth 1, it is possible to accept and handle ships with a maximum length of 320 meters, while at berth 2 it is possible to accept and handle ships up to a maximum length of 265 meters with the possibility of extending the berths and accepting ships with a length of up to 320 meters. The newly constructed berths required both adequate road and walking access, which were therefore provided. Road communication by vehicles is possible with all parts of the newly built coast, including supply of ships, garbage removal, reception of ropes, fire brigade access, etc. (Figure 3.).



*Figure 3: Newly constructed coastal area with operational moorings [4]*

The first external berth was put into operation in 2016, and the second in 2017. The outstanding contributions of external berths are directly related to the port's operations and better recognition on the cruise market, and consequently to the development of the destination. To this end, the need for analysis and review of the benefits generated in terms of service quality and business after the construction of external berths in the city port of Split was determined. The aim of the research is to give a clear insight into all the advantages and disadvantages associated with the reception of cruise ships on the external berths, to identify factors that have an impact on business and service quality, to compare them with examples of good practice and to define a framework for further development.

## **2. MATERIAL AND METHODS**

The research was conducted for the period from 2015 to 2019 based on data from the Split Port Authority [1]. The business analysis was carried out through economic and financial indicators, and the quality of service through infrastructural, social and development indicators. Quantitative effects imply an increase in the capacity of the port, berths and ships, which as a result has an impact on the operation of the port, primarily through an increase in income. Economic indicators in the exploitation of external berths are observed through two paradigms: the impact of port fees and charges on business operations and the traffic of cruise passengers and cruise ships as a function of business [5]. Qualitative effects are considered from the point of improving the offer, traffic conditions, attractiveness of the destination, mobility and safety of passengers, and prerequisites for further development. The data are presented in the framework of descriptive statistics and compared in relation to the time periods before, during and after the construction of external berths. Qualitative effects are derived from the benefits of investment, modernization and rationalization of operations.

## **3. RESULTS**

The results of the analysis are presented by reviewing quantitative and qualitative indicators.

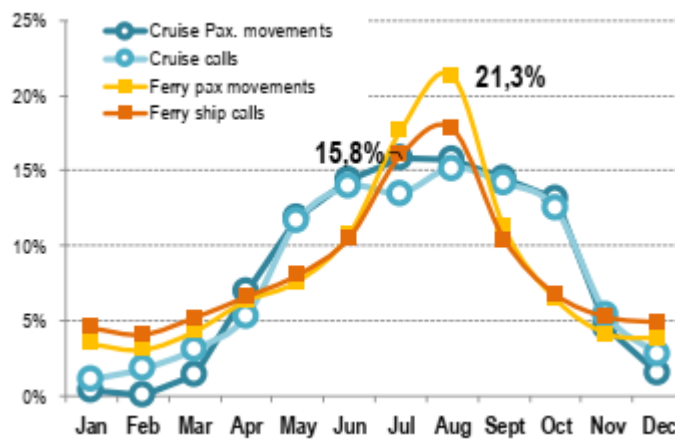
### **3.1. Quantitative indicators**

The number of passengers and the number of port calls at Split Port in cruise traffic is shown in Table 1.

*Table 1: Share of passengers and number of ports call at Split Port within Croatia's overall cruise traffic.*

Year	Number of passengers		Share	Number of port calls		Share
	Total - Croatia	Port of Split		Total - Croatia	Port of Split	
2015	1,048,229	271,445	26.0%	768	261	33.9%
2016	1,092,199	278,259	25.4%	825	286	34.6%
2017	947,306	232,244	24.5%	691	234	33.8%
2018	1,033,885	307,148	29.7%	693	260	37.5%
2019	1,109,399	359,955	32.3%	710	282	39.7%

By analysing the five-year period, it can be observed that the share of the port of Split in the total number of cruise passengers is in the range of 24.5% to 32.3% with a tendency for further growth, to which external berths also contribute. Furthermore, the number of port calls by shares is from 33.8% to 39.7%, which leads to the conclusion that a larger number of cruisers with smaller capacities came to Split. Seasonality is a well-known problem of cruise tourism, so it is also evident in the port of Split. The dispersion of cruise trips at the level of one year reaches its peak in the period from June to October, as shown in Figure 4.



*Figure 4: Seasonality of cruise tourism on the Adriatic [2]*

Port fees and charges are a large part of the income of the port of Split, and as such they also have an impact on business operations. When it comes to cruise ships, port tariff amounts are not only important due to the revenue they generate, but also as part of the competitive factors that influence cruise lines when choosing a port of call. Port tariffs concerning cruise ships are adopted by the port authority in accordance with market developments, as well as port and business policy, and in accordance with the Maritime Domain and Seaports Act. Also, within the decision, an important content that will concern companies in the cruise industry are certain discounts according to the number of passengers or the time period within the year [6]. Cruise ships are obliged to pay a fee for the use of the shore for embarking or disembarking passengers. The total amount that the ship is obliged to pay on a round trip is calculated according to the specificities of the ship, based on the gross tonnage as well as the number of embarked or disembarked passengers and passengers in transit. The obligation to pay the waterway maintenance fee is valid only for the first port of call for all Croatian ports on a monthly or annual basis. Table 2 shows the total port fees for cruise ships.



Table 2: Amounts of port fees for cruise ships in the port of Split [4]

3.1.	SHORE USE FEE - ON THE BASIS OF THE BT				
3.1.1.		The ship is berthed	BT-dg	BT-gg	€
				<5.000	550,00
			5.001	10.000	0,102
			10.001	20.000	0,094
			20.001	30.000	0,088
			30.001	40.000	0,082
			40.001	50.000	0,077
			50.001	60.000	0,073
			60.001	80.000	0,071
			80.001	100.000	0,070
			100.001	120.000	0,069
			>120.000		0,068
3.2.	SHORE USE FEE - PER PASSENGER/CREW BASIS				
3.2.1.		Per passenger in transit - 0.95 €			
3.2.2.		Per embarked/disembarked passenger - 1,90 €			
3.2.3.		Per crew member (crew change) - 0. 95 €			
3.3.		DISCOUNTS			
3.3.1.		Number of ship call within the calendar year			
			10 - 20 port calls	10% of the total price	
			> 20 port calls	20% of the total price	
3.3.2.		Ships with "home port" arrangement			
		40% of the amount per BT (2.2.1.)			
3.4.	BERTH CANCELLATION FEE IN THE PORT OR ANCHORAGE				
3.4.1.		Reservation cancellation 0-30 days prior to the announced arrival		0,034 €/BT	
3.4.2.		Reservation cancellation 31-120 days prior to the announced arrival		0,014 €/BT	
3.4.3.		Note: the ship does not pay a cancellation fee if the reason for the cancellation is force majeure			

The obligation to pay port fees for international cruise ships concerns the services provided by concessionaires, namely: port pilotage, port towage, customs duties, removal of solid, liquid and various waste, agency fees. As with fees, the amount of port fees depends primarily on the size of the ship in gross tons. For example, the total cost of a cruise ship in the port of Split of 53,015 GRT, length 220 meters, width 31 meters, draught 7.6 meters, passenger capacity 1,680, crew number 620 and maximum speed 20 knots is EUR 36,111.55. A total of 12.9% refers to port fees, while the largest part of the cost is made up of port charges, i.e. 87.15% of total costs [7]. The growth trend of cruise traffic in the port of Split is shown in Figure 5.

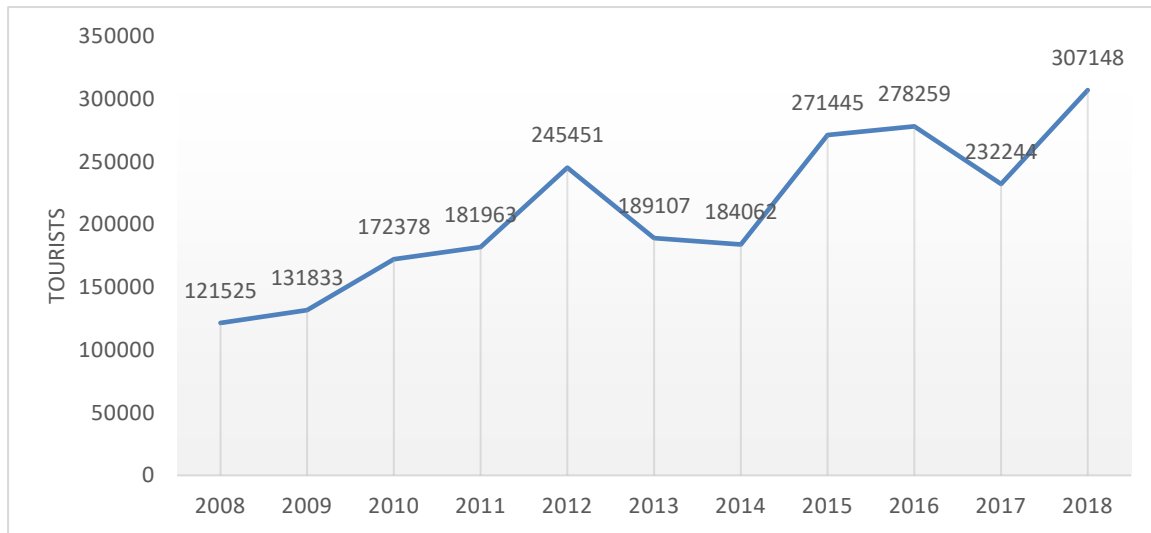


Figure 5: Growth trend in the number of passengers from cruise ships from 2008 to 2018.

The number of cruise ships calling at the port of Split also has a growing trend that roughly follows the increase in the number of passengers. However, it should be noted that the increase in the port traffic is smaller compared to the increase in the number of passengers (Figure 6).

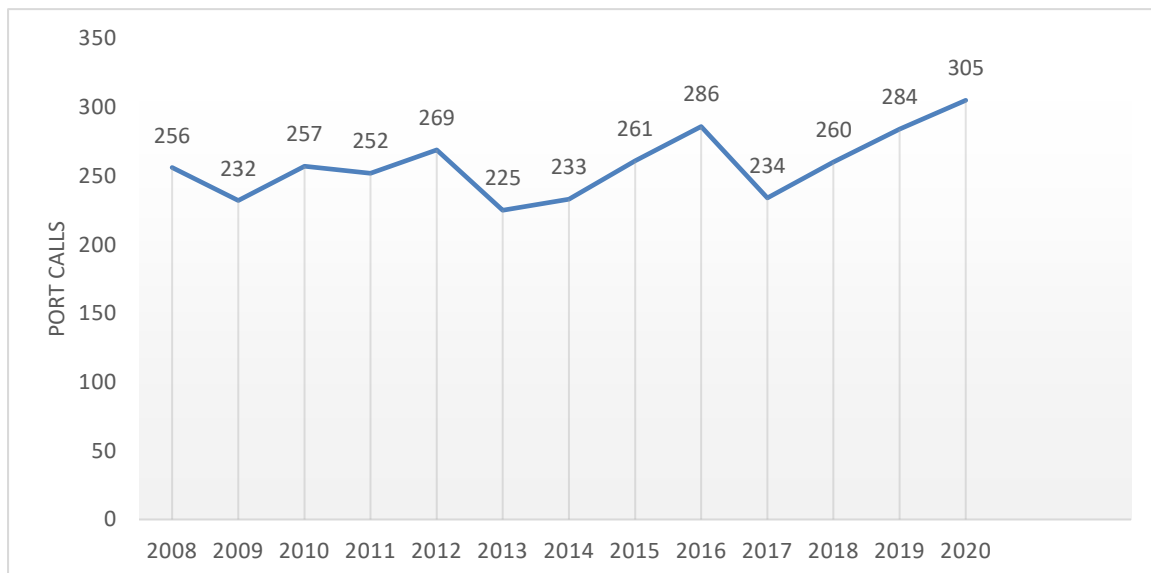
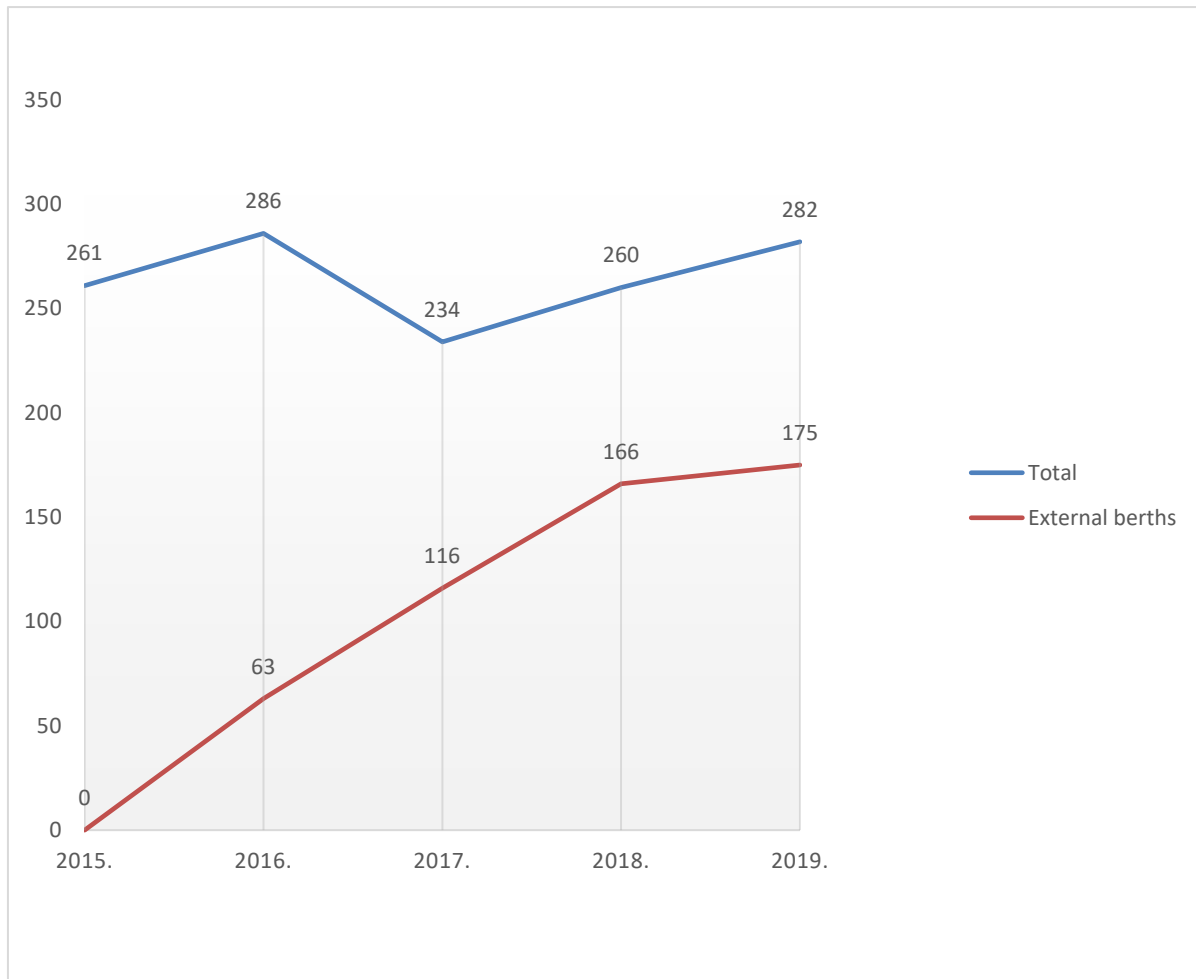


Figure 6: The growth trend of cruise ship traffic in the period from 2008 to 2020.

Figure 7 shows the share of cruise ship calls at external berths in relation to the total number of calls at the port of Split in the period under consideration.



*Figure 7: Comparison of the port calls on the external berths to the total number of port calls in the port of Split from 2015 to 2019.*

The data in Figure 7 shows the possible impact of the construction of external berths on the operation of the port. The first outer berth was put into operation in the middle of 2016, when the number of cruise ship calls at this berth was 63 out of a total of 286, which represents 22% of the total arrivals of cruise ships. The following year, the second external berth was put into operation, and 116 berths were recorded out of a total of 234 cruise ships in the port of Split, i.e. 49.5%. Furthermore, in 2018, 166 out of a total of 260 cruise ships or 63.8% arrived at external berths, while in 2019, which marks a record tourist year in the Republic of Croatia, 175 out of a total of 282 cruise ships arrived at external berths with a share of 62 %. In order to present a full picture of the role of external berths in the port of Split in the context of business operations and benefits thereof, both for the port and for the wider community, bearing in mind the purpose of building external berths, i.e. expanding the port's reception capacity with an emphasis on the possibility of accepting mega cruise ships, it is necessary to analyse the structure of the size of cruise ships on that arrive to the port of Split. The structure of the mentioned fleet mainly refers to very small cruise ships and mega cruise ships that visit Split in roughly equal measure. The difference in the number of passengers from these two types of ships is huge, i.e. very small cruise ships with the same number of port calls bring only 2% of the total number of passengers, while mega cruise ships bring as much as 73% of the total number. The remaining 25% of passengers are brought by cruise ships of other sizes, including small, medium and large cruise ships [7]. The structure of the total number of port calls of cruisers of all sizes can be seen in Figure 8.

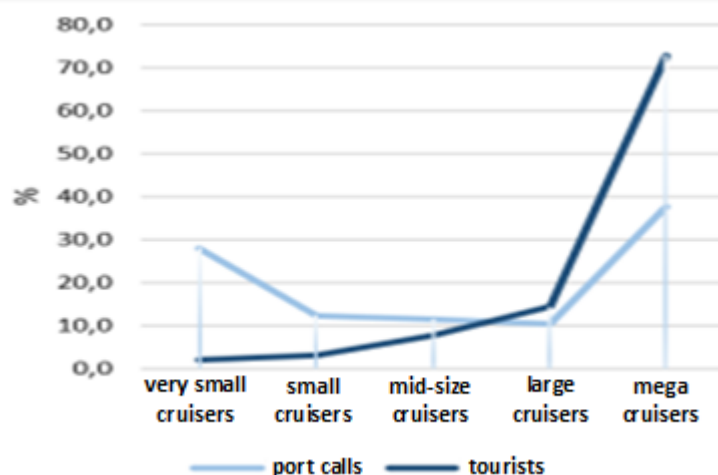


Figure 8: The structure of the cruise ship traffic at the port of Split, categorized by the ship's size, in 2018.

The data indicate that the majority of passengers (>70%) arrive at the destination on mega cruisers. Table 3 should be considered in order to support the assumed statement.

Table 3: The average length of cruise ships and average number of passengers on board in 2014 and 2019.

	2014	2019
Average length of the cruise ship	198.68 m	261.13 m
Average number of passengers on board	780.3	1276.4

The table shows the increase trend in the capacity of accepting cruise ships in the port of Split in the analysed period. By analysing the data in 2014, when there were no external berths, it can be seen that the average length of the cruise ships that called at the port of Split was 198.68 meters with an average of 780.3 passengers on the cruise ship, while in 2019, when the berths were already in operation, external berths reached maximum utilization. The average length of the cruise ship was 261.13 meters with an average of 1276.4 passengers. By converting these numbers into percentage points, an increase of 31.4 percent in the average length of cruise ships and an increase of 63.6 percent in the average number of passengers on a cruise ship is evident. Table 4 shows the number of cruise ship port calls in 2019.

Table 4: Details of cruise ship port calls in 2019

Number of days of port calls	218
Total number of cruise ship arrivals	282
Total number of passengers on cruise ships	359,955
The largest number of simultaneous cruise ship port calls per day	5
The largest number of passengers per day	6,649
The average number of cruise ship arrivals per day	1.29
The average number of passengers per port call of the cruise ship	1,651

During 2019, cruise ships called at the port of Split 208 days a year with an average number of arrivals of 1.29 and an average number of passengers of 1,651 per day of call. The highest number of calls in one day was 5, on 15 April 2019, with a total number of passengers of 4,510. The maximum traffic in 2019 was on 8 August 2019, with 6,649 passengers on three cruise ships, two of which docked on external berths with 4,206 passengers.

Total revenues as well as revenues from the sale of goods and services in the port of Split in the analysed period are shown in Table 5.

*Table 5: Presentation of total income and income from the sale of goods and provisions of services from 2015 to 2019 in HRK*

	2015	2016	2017	2018	2019
Total income	58,537.853	43,980.055	43,709.884	52,060.664	52,481.682
Income from the sale of goods and provisions of services	46,462.344	40,582.666	39,674.708	43,380.372	47,122.402

By analysing the amount of income generated in the port of Split in the given period, it is evident that the total income in 2018 increased compared to the previous year by HRK 8,350,780, and then in 2019 by another HRK 421,018. Furthermore, revenues from the sale of goods and the provision of services in 2018 increased by HRK 3,705,664 compared to 2017, and in 2019 they increased by HRK 3,742,030 compared to 2018.

### 3.2. Qualitative indicators

For the purposes of defining the quality of service at the reception of cruise ships on external berths, it is necessary to look at knowledge in all factors that directly or indirectly concern cruising. There are two levels that need to be segmented: the influence of external berths on the qualitative conditions in the port and the influence and preconditions of the development of the quality of services in the destination and its surroundings [8]. When considering the influence of the construction of external berths on indicators of qualitative performance in the port, isolating it from the environment, it is necessary to refer to the reception capacities as a function of the increase in quality, the analysis of the quality of the space for passenger movement and the tourist offer for passengers from cruise ships on the external berths. The primary benefit, which is directly correlated with the quality of the service, is the capacity. The construction of two external berths in the port of Split contributed to the increase of reception capacity. In this context, it is necessary to break down individual types of capacity, namely: seaport capacity, berth capacity and ship capacity. The increase in the capacity of the port of Split brought about by external berths is reflected primarily in two additional berths, but their strategic importance is contained in their proper exploitation. The external berths are located on the outside of the breakwater, and with their characteristics, they can accommodate large and mega cruisers. Qualitative effects in the context of quality and impact on business include, first of all, the turnaround time of the ship. The total turnaround time of the ship consists of several components, namely the waiting time at the anchorage, the sailing time from the anchorage to the berth and the time the ship stays at the berth [8]. When the aforementioned assumptions are taken into account, the impact of external berths is directly related to the mentioned components, and especially to the waiting time at the anchorage and the sailing time from the anchorage to the berths. The above-mentioned effects create benefits for both parties in the process. From the shipowner's point of view, it means a shorter wait for berth and a shorter sailing to the berth, items that bring savings. From the passenger's side, the arrival time at the destination has been shortened. Considering the port side, by shortening the turnaround time of an individual ship, the port will be more effective, a greater number of ships can use the port's capacities while reducing the rate of port congestion. An important factor brought about by external berths is the increase in berth capacity.

The City Port of Split was limited in terms of the size of ships that could dock at the existing berths, and taking into account that the external berths did not previously exist, expanding the existing berths while reducing the space for manoeuvring in the port was not an effective option. For these reasons, the construction of external berths was imposed as the only solution for the increase in berth capacity, and primarily for the possibility of accepting large and mega cruise ships. Split is becoming an increasingly popular destination every year, and the cruise industry is no exception, and the number of itineraries the port of Split is listed on is increasing. The construction of external berths attracted an even greater number of cruise ships, and thus a greater number of passengers, which is assessed as a direct qualitative contribution. The third component in considering the qualitative effects of external berths is the ship's capacity. Given that the increase in berth capacity is directly related to the increase in ship capacity, i.e. the arrival of a larger ship is a consequence of the construction of external berths, it can be said that the previously described analysis also applies to this component. The area on the external berths used by passengers can be divided into two subsystems, i.e. the area intended for the movement and holding of passengers disembarking from the cruise ship at the destination and the area intended for the movement and holding of road vehicles. When it comes to the quality related to the reception of cruise ships, and considering the nature of such ships that carry a large number of passengers, there are three components that affect quality, namely: traffic processing areas (the area from which passengers enter the ship directly from the shore), gathering places or meeting places (places where queues are potentially created due to less throughput of the boarding ramp compared to the number of passengers) and connections or corridors (to connect the ship with the exit points of the port area) [8]. The main factor in the quality increase in the reception of cruise ships is driven by higher throughput through all three of the above components. The external berths contain large enough areas to handle a large number of passengers, and the construction of the berths is guided by the principles of a constant increase in the number of berths and the number of passengers. Considering the nature of the habits of cruise ship passengers, gathering places do not pose a problem for cruise ship passengers on external berths. The reason for this is primarily the dispersion of passengers who leave the ship or come on board throughout the day. Also, due to the location of the external berths, which is far from the central port area, i.e. on the breakwater, the space for the movement and holding of passengers remains only for the users of the external berths. Road links or corridors for the movement of vehicles are the main limiting factor of passenger mobility in the destination today.

#### **4. DISCUSSION**

Analysing the annual port calls, the anomaly of a drop in 2017 compared to 2016, from 286 to 234 arrivals, is evident, and therefore a corresponding drop in the number of passengers. Furthermore, in 2018, there was a total of 260 port calls, which is not a particularly significant increase. However, although the number of port calls has not increased significantly, the number of passengers has, which clearly shows the positive role of external berths, taking into account the reasons for the construction, i.e. the reception of cruise ships of large dimensions and capacity [9]. According to indications from 2018, a total of 280 port calls and 350,000 passengers should have been reached in 2019, and it is obvious that these figures were exceeded and amounted to 282 port calls and 359,955 passengers. This serves as a proof of positive business results that justifies the profitability of investing in the construction of external berths. There are numerous benefits brought by external berths. Primarily, it is an increase in the port's reception capacity as well as the possibility of accepting large cruise ships. Large cruise ships bring more passengers and pay higher port charges. Accepting large cruise ships leaves more free berths within the port for smaller cruise ships, and the distribution of passengers within the port is more even, reducing the effect of port congestion with passengers and cars.

The construction of external berths indirectly affects the operation of the port in the off-season, providing the possibility of a dock for local ferry connections, so in 2020 and 2021 the dock of the ferry Petar Hektorović was moved from the Sv. Petar pier to the external berth. The structure of cruise ships in 2018, when the external berths were already in full operation, did not change significantly the following year, while the years 2020 and 2021 were not even suitable for analysis due to the global pandemic of the Covid-19 disease. The structure of ship traffic by size in any case gives an insight into the operations of external berths. Taking into account the tariffs that cruise ships have to pay, i.e. the fee for the use of the coast that is paid according to the gross tonnage of the ship and the number of passengers, it can be concluded that the external berths as the main acceptance carriers for mega cruise ships, which make up 38% of the traffic according to the number of port calls and 73% of traffic according to the number of passengers, generate the highest revenues. According to the projections and announcements of the Split Port Authority, after the construction of the external berth, the traffic of large cruise ships should have been extended from the previous period from April to October to March and December, which was realized and thus in 2017, 2018, and 2019 reduced the impact of seasonality. This confirms the theoretical assumption that with the good development and operations of the port and its parts, the cruise industry is not subject to seasonality like other forms of tourism in Croatia [10]. To see the full picture of the total income from cruising, the complete income structure shown in Figure 9 should be defined.

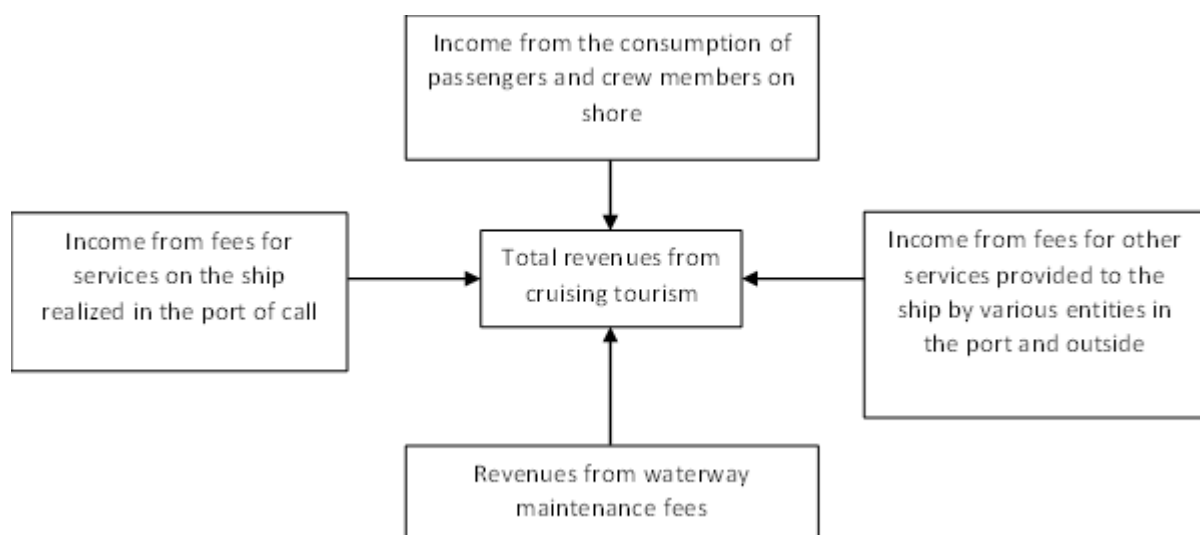


Figure 9: Structure of total revenues from cruise ships [11]

By singling out port tariffs, i.e. fees and charges, and due to the impossibility of calculating income from fees for other services provided to the ship by various entities in the port and outside, it remains to analyse the income from the spending of passengers and crew members on land as the main economic link between the port and the city. The average spending of passengers from cruise ships in the port of Split in 2019 was around EUR 50, while the average consumption of crew members was around EUR 30. Considering the number of passengers who arrived at the port of Split in 2019 (359,955) and the number of crew members (116,050), there are a total of 476,005 visitors who came to Split on cruise ships. The above figure is not a representative sample for the calculation of total revenues due to the lack of exact data on the number of passengers who disembarked at the destination and those who stayed on board. According to an already established estimate, of the total number of arriving passengers and crew members, 70% of passengers and 30% of crew members disembarked [7].

According to estimates, the passenger spending at the destination amounted to approximately EUR 12.5 million, while the crew member spending amounted to approximately EUR 1 million, totaling approximately EUR 13.5 million. This growth trend from 2014 to 2019 is not exclusively related to the construction of external berths. Part of it should definitely be attributed to the growth trend of tourism at the level of the entire country, because the number of tourist arrivals is increasing every year. On the other hand, the rapid increase in the positioning of Split as a tourist destination in recent years should be noted. However, when it comes to the cruise industry, the construction of external berths has been one of the main drivers of change. The berths ensured sufficient capacities for reception, and also the influence on the operations of the entire port. The traffic of cruise ships, as a significant factor in the total traffic of the port of Split, is subject to capital infrastructural changes, which the construction of external berths certainly is. As a rule, the capacity of the seaport should be in accordance with the demand, and it is closely related to the number and characteristics of the ships that are expected to call at the port. The announcement of the arrival of as many as 323 cruise ships in 2022 shows the growth in demand for the destination and supports the investment [12]. Limiting the size of the ship entering the port of Split was the biggest problem for the cruise industry. Before the construction of external berths, the movement of large cruise ships for which there was no large enough berth, nor room for manoeuvring in the port, took place on the principle of mooring cruise ships in front of the City Port, and then passengers were transported to the shore by tenders. This form of exploitation of the cruising potential has limitations primarily for the passengers on board, and in that regard, a direct impact on the quality of service, therefore certain companies decide not to call at the port of Split. Considering the port side, the limitations are primarily of an economic nature due to the additional costs of using the tender, the frequent occupation of the anchorage and the use of additional berths in the port for tender acceptance. This kind of acceptance of cruise ships has a direct impact on the loss of income, because ships anchored outside the port pay port fees of only 50% compared to the standard tariff. As a rule, passengers from cruise ships who want to visit closer destinations, e.g. the old city center, leave on foot, while passengers who go to more distant destinations and use road transport to return to the ship, e.g. taxi services, public city transport or the like, face with a difficult flow of vehicles through the port, especially on days with peak traffic in the port. The reason for this primarily lies in the fact that the port has limited capacity for vehicle circulation, that is, there is greater congestion and the creation of a "bottleneck" effect both at the entrance and at the exit from the port. The space for the movement and holding of road vehicles at the external berths is adequate and has the ability to accommodate a larger number of vehicles than before. Also, the safety aspect and the possibility of unhindered movement of passengers from the external berths towards the central part of the port and the exit from it should be highlighted. Pedestrian corridors are provided with clearly regulated traffic flow. Taking into account the city's maximum simultaneous sustainable capacity levels, the city's sustainable capacity of 5,000-6,000 visitors was exceeded only on one day during 2019. However, the question arises whether it was really exceeded, since there is no information on how many passengers actually disembarked from the cruise ship. If the generally accepted ratio of passengers and crew disembarking from the ship at the destination were to be accepted, the burden on the city would fall to around 4,654 passengers on a day with a maximum traffic. Thus, theoretically, there would be room for around 2,000 more visitors from cruise ships until the maximum capacity of the city is met without disrupting sustainability. Less than 50% of the capacity of the destination, which is approximately 10,000-12,000 visitors, was utilized on the day with the maximum peak traffic in 2019. Also, the maximum daily capacity of the port, which is estimated at around 10,000 visitors, is not fully utilized, and the utilization rate is around 65% [7].



Under the influence of the technical and technological challenges facing external connections, but also under the challenges of progress and traffic organization, business conditions are changing radically and dynamically. The organization, operation and development of external berths is determined by port policy measures, mainly within the framework of the development and business policy of the Port Authority in cooperation with all interested stakeholders, the city and the county [5].

## 5. CONCLUSION

From the point of view of the operation of the port, and in terms of the construction of external berths, the main indicator is a positive change, i.e. an increase in the number of passengers and cruise ships arriving at the port of Split. Following the above, after the construction of external berths, 307,148 passengers visited the port in 2018, and the largest increase in the number of passengers in a one-year interval was also determined, when the number of passengers compared to 2017 was higher by 74,904, indicating a growth of 32.2%. Growth continued in 2019, which represents a record year for the number of cruise ship and passenger arrivals, when the number of passengers increased by 52,807 compared to 2018 at a rate of 17.2%. The number of cruise ship arrivals followed the increase in the number of passengers, thus 260 arrivals were recorded in 2018, i.e. 26 more than in 2017, which represents an increase of 11%. In the record year 2019, 282 port calls were recorded with a growth rate of 8.5% compared to 2018. The increase in the number of arrivals moved at a lower rate compared to the increase in the number of passengers, which indicates the implications of external berths on the structure of the size of cruise ships, i.e. the possibility of accepting a larger number of large and mega cruise ships. It was observed that 73% of the total number of passengers in the port of Split arrived on mega cruise ships, while the remaining 27% arrived on cruise ships of all other sizes. The importance of the construction of external berths was analysed through the share of cruise ships that docked at external berths in relation to the total number of arriving cruise ships. The analysis determined that in 2016, when the first external berth was put into operation, out of a total of 286 calls, 63 cruise ships docked at the external berth, i.e. 22%. The following year, with the commissioning of the second external berth, 116, or 49.5%, of the total 234 cruisers docked at external berths. Furthermore, in 2018, the share of cruise ships docked at external berths was 63.8%, and in 2019, 62% of the total number of port calls. The most prominent benefit resulting from the construction of external berths is the overall increase in capacity, namely: increase in seaport capacity, increase in berth capacity and increase in ship capacity. The mentioned increases in capacity brought about by the external berths have strategic importance for the port of Split in terms of the increase in the quality of services. The benefits resulting from the increase in capacity can be noticed in terms of the port, shipowners and passengers. When it comes to the benefits in terms of the port, the link between qualitative effects and business results is primarily highlighted in the way that the increase in capacity opened up the possibility of accepting a larger number of cruise ships and passengers, which happened in the years after the construction of the external berths. The external berths also had a positive effect on the distribution of the total ship traffic through the port, therefore the majority of the cruise ship traffic was moved to the external berths, which decongested the rest of the port, and the aforementioned factors contribute to the effectiveness of business processes in the port. In terms of the shipowner, the benefits of external berths primarily generated greater interest in the port of Split. Also, the shorter waiting time for the berth, shorter sailing to the berth and shorter arrival time of passengers at the destination contribute to greater interest, which is a direct consequence of the construction of external berths. The same factors enable greater passenger mobility and a longer stay in the destination. When it comes to the impact of the destination's capacity on the quality of service at the reception of cruise ships, despite the construction of external berths, the maximum sustainable capacity of the port and the city has not been reached.

The traffic conditions in the port of Split and the wider city area represent a limitation to the increase in the quality of service. Inadequate road infrastructure is the main reason for creating traffic jams and hindering the movement of passengers. The main indicator of the impact of traffic conditions on the quality of service is time, since the cruise ship's stay on the port is time-limited, which makes it difficult for passengers to leave (and return) from the cruise ship for trips outside the destination. The construction and exploitation of external berths has brought benefits on several levels, that is, it has strengthened the coupling of stakeholders participating in the processes of the cruise industry. The increase in the quality of services attracts a larger number of cruise ships and passengers, which creates the foundations for more favourable business results of the port of Split and greater attractiveness and reputation of the destination.

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## THE ASPECTS OF SENSEMAKING

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### ABSTRACT

*The purpose of this paper is to analyse how the process of sense-making helps job rotation. The primary aim is to accumulate and analyse the different aspects, interpretations and theories of sense-making, as well as their possible contribution to collecting "the best practices" of job rotation. Sense-making is a huge and diverse topic, for this reason, it is worth examining in itself and in depth. The topics discussed will be those of organizing and the process of sense-making, as well as the questions of sense-making as a narrative construction, a learning mechanism, a means to understand and respond to complexity, sense-making in organizations, and sense-making as an important element in the co-production of safety. Managers of an automotive company constantly but subconsciously use sense-making as a technique to rationalise company decisions and make a success of their job rotation within the ever-evolving market environment.*

**Keywords:** *sense-making, job rotation, organisations, policy-making*

### 1. INTRODUCTION

The research question of the author is: How reasoning and/or sense-making helps in successful job rotation? In order to find an answer to that question it is essential to explore and analyse the different uses and interpretations of the psychological concept of "sensemaking" as introduced by Karl E. Weick. Sense-making has been defined as "the ongoing retrospective development of plausible images that rationalize what people are doing" (Weick, Sutcliffe and Obstfeld, 2005). The authors and their articles summarized below all provide different aspects of the topic, which also demonstrates how diversified and colourful the concept of sense-making can be, and as such, how essential it is as regards company decisions within the ever-evolving market environment. The purpose of the first part of this essay is to give a selective overview of the works of Karl E. Weick et al. (2005), Larry Browning et al. (2005), Mitchel Y. Abolafia (2010), Sally Maitlis et al. (2014), Penny Rhodes et al. (2015) and Jaime Ortega (2001).

### 2. THE DIFFERENT ASPECTS OF SENSEMAKING

When discussing the topic of sense-making, Karl E. Weick's works always serve as a good starting point. Weick et al. (2005) show the process of sense-making in an everyday context. The authors claim that the inspection of sense-making brings a micro-mechanism which develops macro-change over time. Also, it is the expression of the fact that action is just a tiny bit ahead of apprehension, and we operate our way into delayed perception. The analysis of sense-making provides an interpretation of predetermination activities, and a means by which agents are able to modify systems and environments. It assimilates meaning and mind into organizational theory, and is in contradistinction to the sharp crack between thinking and action that often gets conjured in comments of organizational life. Also, it equips background for a consideration-based view of the firm and a balance between prospect in the form of apprehension and a hindsight in the form of resilience.

Sense-making presents the reinterpretation of breakdowns as occasions for learning rather than as treats to capability, and forms the ground to treat believability, incrementalism, spontaneity and bounded rationality a tolerable guide of purposeful behaviour. Sense-making also recommends relevant proficiency and techniques that warrant consideration and expansion. The theory of achieved environments proposes that pressures are partly of one's own making and not simply objects to which one reacts. The perception of sense-making offers that believability rather than veracity is the ongoing model that guides learning, and the concept of action advises that it is more relevant to keep going than to hesitate, because the tide of experience in which an action is inserted does not pause. The concept of retrospection recommends that catalysts for action, such as diagnostic plans for implementation and strategies, are as much the products of action as they are nudges to it. When exploring the theoretical implications of sense-making, the author to refer to is Larry Browning (2005), whose scope of study is the comparison of the works of two authors, Snowden and Weick (and their associates), in their addressing of the topics of complexity and narrative. The first difference is their opinion on High Reliability Organizations (HROs) – e.g. aircraft carriers and nuclear power plants – as a base for comparison of mainstream organizational practices. While Weick is in favour of using these as references, Snowden considers them too anomalous. Another difference is that Weick's approach is mainly theoretical, whereas the tools and practices Snowden adopted in his analysis of narrative complexity stem from his research program. Weick and Snowden also hold different views on the grammar of sense-making. In Weick's opinion sense-making is a neologism, and as such, should be used as a new concept. Snowden's term, on the other hand, is more conventional, including a multitude of processes. There is also a difference between the type of evidence they build their model on. Snowden uses the feedback from workshop participants, while Weick relies on his filed studies of HROs and jazz orchestras. However, these are mainly differences in style and we can detect major similarities between the ways the two authors view complexity and narrative. First of all, both Weick and Snowden see language – besides the communicator who creates informative, comprehensive and not oversimplified messages – as the primary means of sense-making about complexity. Concerning narrative as a special answer to complexity, Weick and Snowden reach by and large the same conclusion, i.e. that a learning culture of understanding and action can only be achieved by a mix of structure and change. The assumption that learning is closely related to failure – a major component of sense-making – is something that both Snowden and Weick agree on. Another similarity is that when discussing the best response to complexity, the two authors jointly promote a style of communication that is non-egoistic, diverse, probing and interacting. Weick highly emphasises the importance of action as a type of communication that finally leads to identity, and Snowden argues that individuals can act to "experiment with ideas and experience" when these ideas will not be attributed to them. A further point to note is their views on bureaucratic control. They both show that the more autocratic an organization, the more stifling bureaucratic control will be. Surprise, however, fits well into the narrative theory, and in the language of sense-making irony is an essential component of understanding a story. The points of comparison provided by the authors – e. g. the role of individuals and self-organization, point of view as an additional element of complexity, participation and management by exception as opposed to traditional ways of managerial control – demonstrate how Snowden and Weick reach the same conclusions about complexity and narrative as a response to it. Mitchel Y. Abolafia (2010) examines sense-making from the aspect of policy-making. He aims to find a valid answer to the question: "How do elite policy-making groups make sense of complex and ambiguous environments while remaining consistent with the group's institutionalised operating model?" by using verbatim transcripts of meetings at the Federal Reserve and analyses of 14 years of FOMC (Federal Reserve's Open Market Committee) records. The author scrutinizes how executive people cull the facts, order the evidence into a conceivable narrative, and mediate an applicable choice.

Abolafia describes a sense-making process based on shared narrative construction. Narrative is an action, a social process between the narrators, while a shared narrative emerges only after “formulating, editing, applauding, and refusing various elements of the ever produced narrative” (Abolafia, 2010: 352). Sense-making narratives are formulated through a continuous transformation of conversations. The narrative construction possesses five main elements: abduction, operating model, plotting, glossing and selective retention. Narrative construction starts with the selection and perception of facts. However, the selection of a conventionalized set of indicators alone is an inchoate form of explanation. Then, the facts are collected, and an explanatory order is attempted to be created. The narrative construction process described here suggests that the sense-makers at the Federal Reserve are tightly bound to their operating model. Abolafia explains the operating model as a dominant perceptual filter that shapes and prejudices sense-making. Members of a group develop a sense of the way things work and this type of learning may be referred to as an “operating model”. Plotting the narratives weaves together an intricate set of facts and events into a coherent story. The plot creates this coherence by reconfiguring facts and events into the realm of action. In policy making every organization has a repertoire of plots that it draws from making sense of its environment, e.g., terse storytelling, past experience, anecdotal account, untapped storylines, etc. The plot focuses on a small number of indicators as the central cause. The author shows that policy narrative is fragmentary by its nature, and glossing is an interactive process in which members elaborate and evaluate the narrative. Glossing is also a conversational process in which politicians take a position. The process of selective retention is neither inevitable, nor frictionless, it is characterized by a tension between culture and politics. Policy groups are typified by their cultural homogeneity. Politicians often have similar education, similar organizational socialization and look at the same statistical indicators and they share a sense of what actions are institutionally legitimate in their policy environment. Sally Maitlis et al. (2014) provide a general overview of sense-making in organizations and highlight important theoretical and methodological opportunities in the field. When tracing back the historical roots of sense-making, the authors, while emphasizing that the sense-making perspective is a developing set of ideas with some specialized forms challenging key ontological theories, provide an integrated definition of sense-making, stating that it is “a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn” Maitlis and Christianson, 2014: 67). The authors catalogue different events that can be triggers for sense-making, such as the unforeseen environmental jolts, organizational crises and threats to identity, as well as the anticipated or planned change interventions. Another point is how intersubjective meaning is constructed in organizations. With organizational leaders engaged in sense-making, the members of the same organizations actively shape the sense they are given. The four different forms of organizational sense-making are guided, fragmented, restricted and minimal, out of which restricted is found to be the most prevalent. As regards what organizational actors do to construct intersubjective meaning, two important factors are emphasized – narrative and metaphor as sense-making resources on the one hand, and local and situated narrative practices on the other. Action also plays an important role in sense-making. Information on action and inaction can be generated by research on crises and unexpected events, temporary organizations, as well as markets, fields and institutions. It is also shown how sense-making contributes to the accomplishment of other organizational processes, including strategic change, organizational learning, and creativity and innovation. The authors reflect on the ontological differences, namely the ontology and the temporary orientation of sense-making, i.e. where and when sense-making takes place. When discussing the theoretical and methodological challenges and opportunities in the field, they identify five domains valuable for closer study.

These are power and politics in sense-making, sense-making as an emotional process, embodiment and sociometry in sense-making, sense-making as a distributed process, and sense-making and institutions. It is suggested that while in the early days, research on sense-making mainly focused on theory development, there has been a shift towards theory testing and extension, and this trend is likely to continue. As the questions posed become more complex, the methods applied should be modified accordingly. The authors encourage researchers to draw upon fine-grained process data, compare multiple instances of sense-making and apply a wide range of methods. Penny Rhodes et al. (2015) extend the topic of sense-making even further. They analyse how patients make sense of safety in primary medical care, as regards the systematic, psycho-social, physical, interactive and moral dimensions. They also explore how similar these findings are to the sense-making activities of hospital patients. When discussing the topic of sense-making and safety, they define sense-making as “a social process with individuals interacting with people and objects to interpret their surroundings.” (Rhodes et al., 2015: 271) They argue that while some may regard sense-making as a cognitive activity, recently more emphasis has been put on the emotional aspects of sense-making as well. As a result, when patients talk about their experiences and impressions, they are involved in sense-making processes. Action is also an essential element of the sense-making process, which is also realized when patients are able to express their personal perceptions of primary medical care. In their research the authors investigated three core topics: i.e. “(i) trust and psycho-social aspects of professional-patient relationships; (ii) choice, continuity, access and the temporal underpinnings of safety and (iii) organizational and systems-level tensions constraining safety.” (Rhodes et al., 2015: 273) These data were then reanalysed using Weick’s framework. Their findings centre around three topics: sense-making and the articulation of safety, sense-making from experience, i.e. reflecting on safety in practice, and proactive patients and the co-production of safety. According to patients’ accounts safety is not an abstract phenomenon that can be measured or codified but the result of the interaction between people and their environment. It is something that is multi-dimensional and highly personal, negotiated between the individual patient and medical professionals. Therefore, patients claim, there is not a ‘one-fits-all’ policy because standard rules only create winners and losers. Due to their emphasis on the psycho-social aspect of safety, they have more trust in their individual strategies of keeping themselves safe than in the technical apparatus, consequently, they tend to take an active role in the primary care processes, as opposed to hospital patients who prove to be more submissive. Thus, the retrospective nature of sense-making and the presumptions that help participants of the sense-making process take future action, both appear in their behaviour. Consequently, the authors conclude, based on their findings a much broader concept of safety should be constructed that comprises the psychological and emotional elements of primary healthcare. Another aspect of sense-making is the link Jaime Ortega (2001) has constructed between reasoning and job rotation. He defines job rotation as a mechanism that helps firms learn about employee productivity and the profitability of different jobs or activities, including its costs and benefits. When comparing job rotation and assignment policy, his argument is that existing evidence on rotation supports the “firm learning theory” rather than theories of employee motivation and employee learning. Ortega claims that empirical evidence is not in full accordance with the “employee learning” and “employee motivation” theories, therefore the effect of rotation on *firm learning* – “on the effectiveness with which the employer learn about its employees” (Ortega, 2001: 1361) – should be placed in the centre of investigation, as firms can receive valuable information through job rotation, e.g. job-employee matches, the profitability of jobs. He argues that his firm learning theory conforms more to the empirical facts, and aims to compare job rotation and job specialization theories. Ortega relates his work to the job matching article of Jovanovic (1979) and to Miller (1984).

He states that opposed to the job matching literature, in his model the focus is on intrafirm mobility – which is the most typical kind of mobility in the automotive industry –, and employees change jobs in a predetermined way so that the firm could gain valuable information which then helps to improve job assignments. Ortega concludes that based on his model, job rotation proves to be a better learning mechanism than specialization, and that is supported by empirical evidence. As regards the two other job rotation theories, he claims that while the employee motivation theory suggests that firms rotate employees to fight boredom, empirical evidence suggests a negative correlation between tenure and rotation. According to the employee learning theory, firms rotate employees to make them acquire new skills. However, if that was true, there would be a negative correlation between tenure and rotation in innovative firms, or innovation and rotation in a company that has just introduced a new technology. As opposed to these explanations, the theory of firm learning seems to reconcile with all empirical evidence. In their research, the authors of the article study the manager rotation of the world's largest engine factory. Based on initial interviews and pilot questionnaires, it was hypothesized that member of management experience the frosty moments of sense-making in the process of their successful job rotation and that these are important milestones in their adjustment to their new field. A more detailed survey covering 278 managers has already made a conscious effort to observe the progress and concluded that the full mastery and confident use of the terminus technicus in the field is the greatest challenge for the rotating managers.



*Figure 1: Survey Results - What was the difficulty in the new mission?  
(Source: Authors' own data (278 participants))*

They also hypothesized that the full and successful completion of the sense-making progress was linked to the learning and successful use of jargon. The length of the process was also theorized, assuming that the process of lucrative integration and sense-making could be considered complete within six months, based on the pilot questionnaires.

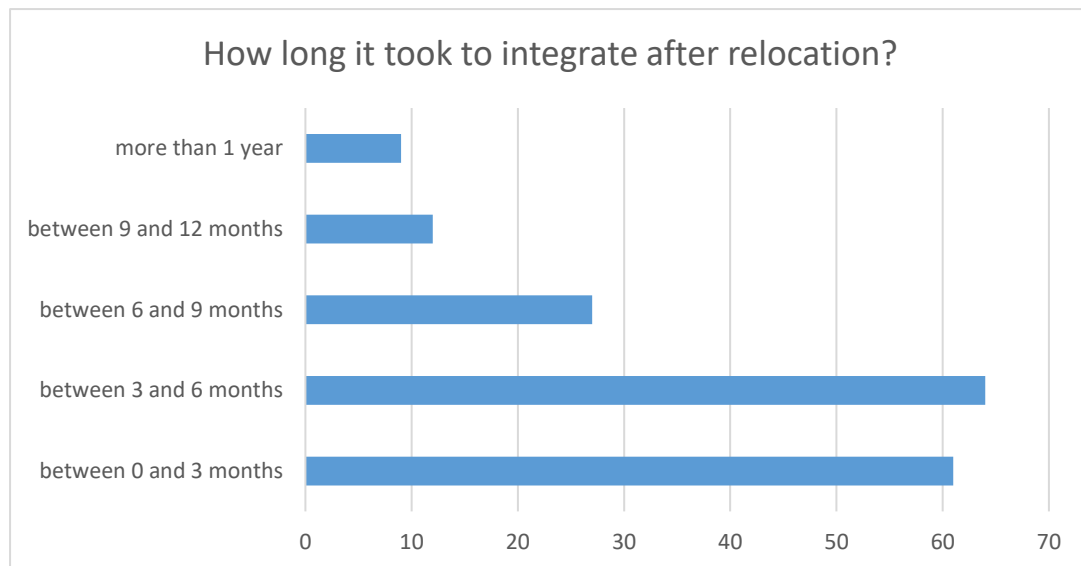


Figure 2: Survey Results - How long it took to integrate after relocation?  
(Source: Authors' own data (278 participants))

### 3. CONCLUSION

In conclusion, it can be stated that sense-making is a critical element of exploring situations both at an organizational and personal level. It has been studied extensively and used as a conceptual framework in a multitude of areas. It has profuse implications, from the technical and operational to the organizational, social or cultural. Besides the traditional approaches of sense-making, new, more complex and fine-tuned methods should be implemented, as it is suggested by several authors. The broader our scope is when examining sense-making, the more likely it is that we will be able to adapt to the unpredictable, ever-changing circumstances at an individual, team and organizational level. The analysis and interpretation of the information available may result in a process for management job rotation. This could be useful for all automotive companies and can give the best results for them under all circumstances.

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## AMID HARSH RURAL AREA CONDITIONS: SMALL ENTERPRISES EMERGED COMPETITIVE THROUGH IS ORGANISATIONAL INNOVATIONS

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### ABSTRACT

*The adoption and use of Information Systems (IS) Organisational innovations for organisational performance, and towards its employee's individual performance success became imperative to organisations, including those in South African rural areas. Small Enterprises in Kgautswane, a rural area in Limpopo Province, South Africa were not an exception to the phenomenon of adopting and using such IS Organisational Innovations. Kgautswane harsh environmental conditions compelled small enterprises within its shores to adopt and use stock ordering systems. In this study qualitative-case study, data has been collected through observations and semi-structured interviews from 13 homogenous sample of small enterprises which, adopted and uses stock ordering system. The Interpretive Phenomenological Analysis (IPA) was employed to explore and analyse the participant's own accounts of lived experiences about stock ordering system use in terms of their relatedness to, and cognitive engagement with it. The findings revealed that Kgautswane due to being physically remoteness and having poor roads, small enterprises had to incur high transportations costs to the markets during stock re-order periods, and the process was time consuming. However, subsequent to the adoption and use of stock ordering system, small enterprises increased their profit margins and became competitive. A multi-level framework for effective use of stock ordering system was developed.*

**Keywords:** *Small Enterprises, Rural Areas, IS innovations, Stock Ordering Systems, Interpretive Phenomenological Analysis*

### 1. INTRODUCTION

Information Systems (IS) Organisational Innovations play a pivotal role in enhancing the effectiveness and efficiency of small enterprises' business operations and supply chains, which links to the Sustainable Development Goals (SDGs) endorsed by United Nations in 2015 as a universal call to action to end poverty and protect the planet towards its 2030 agenda [3,47,51]. There are seventeen (17) SDGs in total which, are integrated so that an action in one area affects the outcomes in others, and that development ought to balance socio-economic and environmental sustainability [47]. This study was aligned to SDG number 1, ending poverty and number 8, decent work, and economic growth. Refer to Appendix A, for the list of all Sustainable Development Goals. IS Organisational Innovations like Stock Ordering System (SOS), such as MyGROCERY, Buy4Now, and e-grocery are being used for various functions; for example, ordering stock products, point of sale, online-shopping, and others [15,16,43]. However, these systems are mostly used in developed countries [2,15,34]. In developing countries, are seldomly used, particularly in rural areas than in urban areas [19]. There is no doubt to have stock ordering systems which are being used effectively by small enterprises. It is therefore, of a great concern that some small enterprises may not effectively use stock ordering systems, which is what motivates this study. There is inadequate understanding of what influences small enterprises to use stock ordering system. The study argued that to understand the stock ordering system use and subsequently its effective use, there was a need to analyses the multi-levels and multi-dimensions of its use. In this study, the dimensions of

use are determinants influencing its use, Organisational use context, and the rural area as a social context. The levels of analysis are the Small Enterprises (Organisational Level), and its employees (Individual Level). The organisations' unique setting and users' (small enterprises employees) beliefs, behaviours and cognitive engagement when using stock ordering system are diverse. Thus, there is a need to understand each organisation's unique use context and individual reactions towards stock ordering use and subsequently, its effective use. The literature review points out that, describing stock ordering system use behaviours in developing countries using findings from developed countries tends to be inappropriate (White, 1988; Porter, 1990; Hostefe, 1991; Janssens *et al.*, 1995; Calvert *et al.*, 1996, and Nejad, 1997) as cited in [34]. This argument informed this study to investigate the stock ordering system phenomenon in a context where it manifested.

## **2. IS ORGANISATIONAL INNOVATIONS (STOCK ORDERING SYSTEMS)**

Stock Ordering System herein referred to as IS organisational innovation. It is a component of supply chain management system that is, custom-tailored for integrative processes between Small Enterprises' (SEs), and their suppliers or other value chain partners. The supply chain management refers to an active management of supply chain activities which includes but not limited to, product or service development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities to maximize customer value and achieve a sustainable competitive advantage [9,26]. The efficiency and effectiveness of logistics have an impact on competitive priorities such as cost, availability, smooth movement of goods and services and meeting customer expectations [9,46]. These enterprises made use of stock ordering systems to complete the task of processing stock orders. This was a technological response to rural SEs as they were unable to effectively remain competitive in isolation from their suppliers and other entities in the supply chain [18], through cost reduction and better logistics [9,27]. As aforementioned, stock ordering system was custom-tailored for small enterprises in Kgautswane circumstances. The modus operandi was compatible with low-end mobile phones (without web browsing applications) which, are ideal for rural area setting (affordability and limited digital literacy issues). To place an order, the SEs sends a structured Short Message System (SMS) with their "username", and "unique code" obtained during registration process together with the "product quantity x product code" (See Figure 1). In this case, the SEs orders 10X Sasko Sam 600g White Bread and 5X 50 Kg Star Meal. The catalogue comprises of a wide range of products which may be of interest to a particular SE. The SMS will then be forwarded to a SMS-C (SMS-centre) server where all orders from diverse SEs are stored, and later processed as bulk orders. Figure 1 depicts how orders are processed using stock ordering system.

*Figure following on the next page*



Figure 1: Stock order process using stock ordering system

### 3. SMALL ENTERPRISES

The universal definition of Small Enterprises (SEs) is still a major concern in the IS literature, as to what exactly constitute the SEs is not standardised [1,19]. Different authors and commissions across the globe share different sentiments in describing what constitute the SEs; for example: The European Commission (EU) defines the SEs largely in terms of the number of employees, and thus between 10 to 99 employees [1]. In Africa Union (AU), the definition is different and contextualised according to specific region; for example: In Ghanaian context, the SEs are defined in terms of the number of employees and the value of fixed assets, and in Zimbabwe, the SEs are defined in terms of number of employees with the workforce of between 30 to 70 employees [1]. In South Africa, according to the National Small Business Act 102 of 1996, SEs are defined in terms of their annual turnover and gross assets, excluding fixed property are added to the criterion [1,19]. The SEs sector is deemed to be a backbone in many global economies, both developed and developing economies [1,42]. In South Africa, it is estimated that 91% of the formal business entities are the SEs and contribute 52% to 57% to Gross Domestic Product (GDP) [1], Small Enterprises Development Agency [38]. Thus, being said, the SEs sector play a pivotal role in stimulating economic growth, in particular the underdeveloped, rural areas through generating jobs and contribution towards poverty alleviation [5,14,21,33,48]. The small enterprises' contribution towards United Nations, African Union, and in particular to the South Africa's National Development Plan 2030 Sustainable Development Goals, inspired this study.

### 4. RURAL AREAS

Rural areas are generally parts of the residential area which were underdeveloped subsequent to the urbanisation process and are characterised by uneven spatial pattern of economic activities and socio-economic development, high unemployment rates, and physical remoteness [13]; Harmse, 2010; [48].

Rural areas economic stimulation requires the development of appropriate institutional infrastructure (legislative frameworks and specialised agencies), and technological innovations [41]. In so doing, the Government, Non-Profit Organisations (NPOs), and private sector contribution towards small enterprises development and support in rural areas fuels economic stimulation which plays a pivotal role in poverty alleviation. The South African Government, strategically positioned itself to stimulate rural areas' economies through the department of agriculture, land reform, rural development (DALRRD), and alongside the department of small business development [38]. This study was inspired by the South African Government commitment to alleviate poverty in rural areas through small enterprises. As aforementioned, a case study of small enterprises in Kgautswane, rural area in Limpopo Province, South Africa was used.

## 5. METHODOLOGY

In this qualitative case study, the section is centred around the systematic description of stock ordering system use, subsequent to its effective use as a social process. Its formulation was structured as follows: it began with the research process design which followed the [36] research onion stance. As each layer of an onion was sequentially peeled, the outer layer provided epistemological and ontological research philosophies, which were discussed alongside interpretive and positivist paradigms, to provide an in-depth and rich comprehensive knowledge about the philosophical underpinnings. The fundamental premise of interpretive paradigm is based on the research participants' unique lived experiences and subjective meanings about their social context [8]. The fundamental premise of positivist studies is based on priori fixed relationships embedded in the phenomenon which, are explored through structured instrumentation, primarily to test the theory or hypothesis [23]. [23] argues that the interpretive paradigm, is premised on the epistemological belief that a social process does not derive from hypothetical deductions, covariances, and the extent of freedom, instead through understanding participants' subjective meanings embedded in a social process. The epistemological stance held in this study, was that of interpretivism. The rationale being, positivist paradigm incorporates the assumptions of the natural sciences, arguing that the social reality that researchers undertake is external to individuals. Thus, researcher's interpretations, and participant's lived experiences and their subjective meanings have no influence towards the existence of the social world within the natural science context [35]. As the research purpose informs the selection of an appropriate approach to theory development, thus, developing a hypothesis, deductive approach or conceptualising a theoretical framework, inductive approach [35]. The inductive approach became appropriate in the context of this study, to empirically conceptualise a multi-level theoretical framework for the effective use of stock ordering system in South African rural small enterprises, subsequent to data collection. [32] defines the case study strategy as an empirical research method that pertains the investigation of a social phenomenon within its real-life context using multiple sources of evidence. [50] echoes [32] sentiments on context emphasis, in particular when the constraints between the social phenomenon and context within which is being studied are not clearly evident and relies on multiple sources of evidence. Within the case study context, description and discussion of the social context when interpreting social actors, small enterprises employee's subjective meanings and lived experiences emanating from data collection instruments was of paramount importance [25]. In addition, IS research scholars and practitioners argued the essence of associating information systems innovation use with the context within which is embedded as pivotal [2,10,28,37,49]. The Interpretive Phenomenological Analysis (IPA) was adopted as the underpinning qualitative data analysis approach which, its philosophical position is rooted in phenomenology, hermeneutics, and idiographic principles [24,39,40].

The purposive homogenous sampling technique was employed, as a branch of non-probability sampling method. According to [35], all non-probability sampling techniques excluding quota samples, the issue pertaining sample size becomes ambiguous as there are no control measures as compared to probability sampling techniques. However, [39,22] argue that non-probability samples from interview-based research having an idiographic objective, seeks a sample size which is appropriately small for individual cases, thus enabling the researcher to develop a comprehensive knowledge on each case. As a result, researchers following the Interpretive Phenomenological Analysis (IPA) stance are given a guideline of 3 – 16 participants [31]. In addition, [6] postulated that 3 participants as the default sample size for undergraduate or master's degree studies', whereas a guideline of 4 - 10 participants is recommended for doctoral degree studies. [17] interviewed 8 women who experienced the vulval pain and discovered that data saturation point has been reached. [8] conducted 11 semi-structured interviews and reached data saturation point. [30] conducted 4 semi-structured interviews and data saturation was reached. This study conducted 13 semi-structured interviews, and also reached data saturation point. [39] argued that "it is pivotal not to consider the higher sample size as a possible indication of a 'better' research, as successful analysis requires time, reflection, and dialogue, and as a result, higher sample size tend to impede all of these things".

## 6. DISCUSSION OF FINDINGS

The Interpretive Phenomenological Analysis (IPA), series of phases made an immense contribution towards advancing rich rigorous of the qualitative research process, its credibility, resonance, ethical, and meaningful coherence of the findings, as [45] argued. As aforementioned, the themes were formulated as research questions the study sought to answer. Theme 1, comprised of three dimensions, technology, organisation, and environment. *Technologically*, the findings revealed that, a free smart phone with stock ordering system preinstalled was provided to small enterprises. *Organisationally*, stock ordering system's ability to penetrate the markets remotely online. Thus, minimising the high transportations costs, influenced its adoption. *Environmentally*, Kgautswane being physically remoteness, and having poor roads which, the researcher also observed (Refer to Figure 3), led to the adoption of stock ordering system. Theme 2, comprised of two dimensions, individual and organisational dimensions. *Individually*, the findings revealed that stock ordering system minimised the small enterprises' employee's operational efforts, thus, leading to improved individual performance. *Organisationally*, stock ordering system brought improved profits towards small enterprises. Theme 3, stock ordering system online mode of operation and fixed catalogue were deemed as factors which may impede its effective use, while factors which led to its adoption, were deemed as factors which supports its effective use. Subsequent to the interpretations of findings related to the research questions or themes (Theme 1, Theme 2 and Theme 3), were aggregated, consolidated, and then refined. As the results, a new scientific knowledge emerged from research core concepts which, shaped the development of the multi-level framework for the effective use of stock ordering system in South African rural small enterprises (refer to Figure 3). The multi-framework demonstrates the underpinning theories, social process within multi-levels of stock ordering system use, decision making, and an outcome for effective use of stock ordering system, as an emergence of low-level interactions to high-level interactions.

*Figure following on the next page*

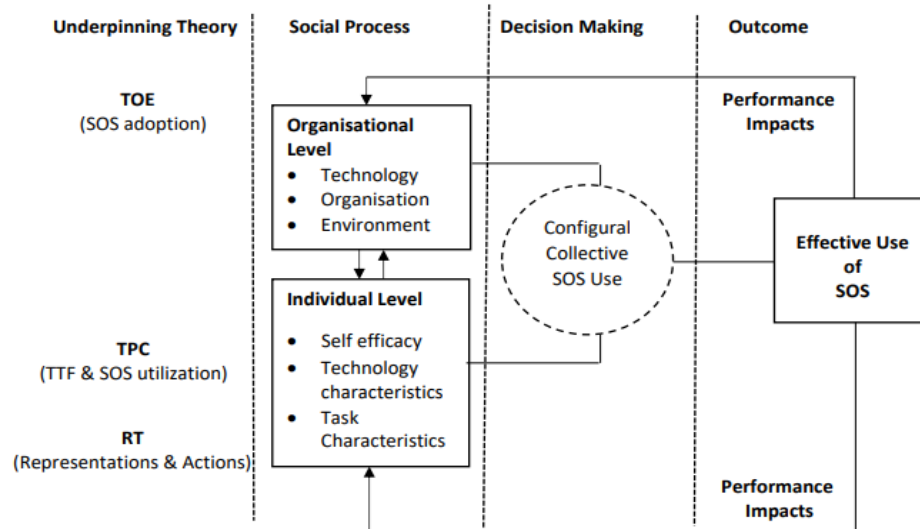


Figure 2: A Multi-level framework for the effective use of stock ordering system.

## 6.1. The Underpinning Theory

The underpinning theory section primarily gives sense to what theory is applied at each level of analysis. However, at this juncture it provides the reflection on the roles and contribution of the respective theoretical framework towards the conceptualisation of the multi-level framework for the effective use of stock ordering system in small enterprises. [8] as cited in Hartley (1994) argues that theoretical frameworks are pivotal in academic studies, as their absence may yield description without meanings. The underpinning theories were:

### 6.1.1. Technology-Organisation-Environment (TOE) Theory

The Technology-Organisation-Environment framework proposes a generic set of contexts that help to explain and predict the organisations' probability to adopt technology or innovation [44]. It is in that vein, the framework has been used as a theoretical lens to facilitate the development of a comprehensive knowledge on the technological, organisational, and environmental determinants which influenced the small enterprises' adoption of stock ordering system. The interpretations of the findings reveal that, from technological context; small enterprises were provided free user-friendly smartphone which was pre-installed with the stock ordering system. The training for stock ordering systems use was provided twice in a month, every second week on Tuesdays to advance users' self-efficacy levels. Organisationally, the stock ordering system's ability to leverage business operational challenges, such as high transportation costs, time and efforts were deemed as the determinants which influenced its adoption. Lastly, Environmentally, Kgautswane was deemed to be physically remoteness from the markets, and has poor roads infrastructure, which the researcher had also observed (refer to Figure 3), were found to be determinants which influenced the stock ordering system adoption.

Figure following on the next page





*Figure 3: Kgautswane poor roads infrastructure.*

#### *6.1.2. Technology-to-Performance Chain Model*

In pursuit to explore and describe the determinants influencing stock ordering system use at varied levels; the use of Technology-to-Performance Chain (TPC) Model as a theoretical lens helped to discover and develop a comprehensive knowledge about such determinants. From the Organisational use context, the interpretations of the findings reveal that improved profit margins and reduced transportation costs for stock deliveries were determinants which influenced the stock ordering system use. [12] concurred with the findings, that the use of technology impacts the organisational performance positively. In the context of individual use, the minimized business operational efforts, and provision of enough time to spend in a shop were deemed as determinants which influenced the stock ordering system use. In addition to that, the technology use at the individual level has been argued to minimize end-user's efforts and time to perform their tasks, which yields improved individual performance [7,12].

#### *6.1.3. Representation Theory*

[43] as cited in Bonaretti and Piccoli (2018) argues that the concept of "effective use" is central to the Representation Theory (RT), because individuals use IS organisational innovations to attain better representations that they leverage to take more informed actions. This analogy implies that the more faithful representations small enterprises' employees attain enable them to take more effective actions, i.e., effective use of stock ordering system. It is in this vein, that the RT was used as a theoretical lens to provide a comprehensive understanding on the determinants of stock ordering system which impede or support its effective use.

### **6.2. Social Process**

The phenomenon of stock ordering system use is a social process by its nature, in a sense that it pertains complex, dynamic, and social interactions that are both context and time dependent [11]. [29] argues that the social concepts are basically formed through the interactions of social actors to enable them to describe and allocate labels or symbols to social processes upon which, the subjective meanings are attributed; thus, facilitating social interactions and individual reflections amongst social actors. In addition to that, [20] posit that, the structure of the collective stock ordering system use does not exist if there are no interdependencies in use amongst diverse levels of use, and if the function of stock ordering system remains constant

across diverse levels of use, then it can be considered a multi-level construct. The upward and downward arrows between the organisational and individual levels of use, depicts that the interdependencies in use between diverse levels of use exist. The stock ordering system function of processing stock orders remains constant at both individual and organisational levels of use. In this interpretive, qualitative, and case study research, [33] argues that the interpretive paradigm, is premised on the epistemological belief that a social process does not derive from hypothetical deductions, covariances, and the extent of freedom, but instead through a comprehensive understanding of the small enterprises' employee's own account of lived experiences embedded in a social process.

### **6.3. Decision Making**

Small Enterprises' employees, as stock ordering system users are attached to their subjective meanings and lived experiences in their social context. For that reason, it is imperative to understand how they proceed through the social decision-making process of stock ordering system use. A dotted circular shape (configural collective SOS use) illustrates that the stock ordering system use is a collaborative, and iterative phenomenon, which is centred around small enterprises' employee's relatedness to, and cognitive engagement with it. The configural collective construct originate from individual attributes and emerge at the collective level in a form of different patterns among members of the collective system use. This implies that at each level of analysis, members may use SOS at different frequencies and/or for different purposes, and these differences amongst members may display heterogeneous but constant pattern. However, the configural system usage may manifests in two basic forms, heterogeneity among collective members that is stable (i.e., static roles and responsibilities at each level of analysis on SOS features) and the other one that changes (dynamic roles and responsibilities at each level of analysis on SOS features) over time. The stable configural system usage was most appropriate and ideal form for this study; hence, there is one dedicated SOS user per organisation and is being used periodically. Thus, to provide the structure for facilitating the process of ordering stock products [4].

### **6.4. Outcome**

The paradigm shifts of stock ordering system use to its effective use implies, performing a goal-oriented activity that helps small enterprises attain the desired organisational and individual performance gains. [42] as cited in Fishbach and Ferguson (2007, pg. 491) argues that goal is a "Cognitive representation" of a desired outcome. With reference to Figure 16, both the organisational and individual outcome has been attained, and it's been illustrated with two "performance impacts" output lines emanating from effective use of stock ordering system, as an emergence of low-level interactions to high-level interactions. At the organisational level, [43] as cited in Drucker (1992) argues that the effective use of stock ordering system is associated with organisational performance gains such as the efficiency, productivity, quality, competitiveness, and market share. Equally so, at the individual level, the effective use of stock ordering system minimises the end-user's efforts and time to perform their tasks, which yields improved individual performance [7,12].

## **7. RESEARCH CONTRIBUTIONS AND RECOMMENDATIONS**

The thesis contributions are bracketed into theoretical, methodological, and practical, contextual, and policy contributions. Theoretically, the thesis conceptualised a multi-level framework for effective use of stock ordering system in small enterprises, using a case study of Kgautswane, Limpopo Province as a rural area. Methodologically, the thesis contributed to quantitative methods selected to collect, analyse, and interpret the empirical evidence.



Practically, the contribution would benefit both academics and practitioners. Contextually, the study discovered how Kgautswane's environmental factors, being physically remoteness and having poor road infrastructure influenced the adoption of stock ordering system. In terms of policy contributions, the thesis contributed to the United Nations – Sustainable Development Goals. Thus, ending poverty, and decent work, and economic growth.

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# THE APPLIANCE OF AUGMENTED REALITY (AR) AND VIRTUAL REALITY (VR) IN CULTURAL TOURISM: A CRITICAL OVERVIEW

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## ABSTRACT

*As one of the fastest growing economic sectors in the world and a key driver of socio-economic development, tourism is an extremely dynamic industry whose changes need to be constantly adapted to. Advances in technology are visible in many areas where it was unimaginable in the past. One of these areas is cultural tourism, in which cultural attractions have experienced a renaissance by applying virtual and augmented (VR & AR) reality. Recently, such application in the field of cultural tourism has become increasingly known, where some cultural entities have recognized their special potential in reviving the historical cultural heritage. However, the VR and AR technology application in cultural tourism brings certain limiting factors. For example, physical museums and galleries are becoming increasingly isolated and less functioning without the participation of visitors. In such context, the paper aims to provide a SWOT analysis, i.e., to investigate the strengths, weaknesses, opportunities, and threats that appear when applying VR and AR technology in cultural tourism. For this study, the relevant literature has been analyzed in detail, and in-depth interviews with cultural tourism responsible staff have been conducted. Based on related findings, the authors claim certain strengths and opportunities, weaknesses, and threats induced by the VR and AR applications in cultural tourism.*

**Keywords:** *augmented reality (AR), virtual reality (VR), cultural tourism, critical overview*

## 1. INTRODUCTION

Tourism is a dynamic industry; therefore, attraction promoters must constantly react to environmental changes to remain competitive (Lei, Suntikul, & Chen, 2023). In such a context, technology plays an important role. Consequently, promoters of cultural heritage attractions have begun to explore the possibilities of applying the latest technologies to enhance tourism experiences (tom Dieck, Jung, & Michopoulou, 2019). Recent studies have found wearable augmented reality, primarily via mobile phones, contributes to enhancing the learning experience at cultural heritage attractions (Dieck & Jung, 2017). By using such technologies, tourist visitors experience improved interaction with the attraction, which is considered much more significant after such a lived experience (Buhalis, & Amaranggana, 2015; Han et al., 2019). Evidently, in last more than 20 years, virtual reality technologies such as virtual reality (VR) and augmented reality (AR) have enabled tourism managers to significantly increase the satisfaction of tourists by providing them with unforgettable experiences (Loureiro, Guerreiro,

& Ali, 2020). It seems to be the commercialization of smartphones and online virtual environments have also encouraged service providers to engage tourists as active participants through virtual reality applications, allowing them to experience products and different destinations from the comfort of their homes (Bogičević et al., 2019). Additionally, the advances in sensor technologies have also led to increased availability and use in the tourism sector (tom Dieck, & Jung, 2017.) Such virtual environments based on new and upcoming technologies are changing how travel operators stimulate their customers' experiences before, during, and after their stay in the destination (Loureiro et al., 2020; Neuhofer, Buhalis, & Ladkin, 2012). More specifically, VR/AR technologies are used to promote a destination or place, to enhance the experience of reality at the destination, or to "immerse" consumers in a new and completely challenging tourist experience (Han et al., 2019). On the other side, over time, the use of AR and VR in cultural tourism, besides opportunities like enhanced engagement, accessibility, storytelling, accessibility, cost-effective replication, etc., also highlighted challenges like inclusivity, content quality, cultural and ethical concerns, dependency on technology, privacy and data concerns etc. In light of the stated research problem, this study aims to answer the following research questions, going into different aspects of the application of virtual and augmented reality technology in cultural tourism:

- 1) What are the advantages of using VR/AR technologies in cultural tourism?
- 2) What disadvantages or limitations arise from implementing VR/AR reality technology in cultural tourism?
- 3) What potential opportunities exist for using VR/AR technology to enhance cultural tourism experiences?
- 4) What are the challenges or risks of applying VR/AR technology in cultural tourism?

These questions will serve as the guiding framework for exploration and analysis in this research endeavor. The paper finished with a conclusion and related implications for future research on forthcoming challenges of VR/AR technology usage in cultural tourism.

## **2. EMERGING TECHNOLOGIES: VR AND AR REALITY**

Virtual reality (VR) is a multifaceted concept with varying definitions, encompassing the creation of computer-generated 3D environments, referred to as virtual environments, that users can actively control and interact with, thereby simulating real-time sensory experiences (Guttentag, 2010; Mandal, 2023). The managerial aspect of VR involves the user's ability to navigate and explore this virtual space, while the communicative dimension focuses on selecting and manipulating objects within it (Guttentag, 2010; Beck et al., 2019). The devices facilitating the VR experience are central to it, enabling users to seamlessly become part of the virtual environment. These VR devices dynamically adjust in response to user reactions and movements, fostering a profound sense of interaction and immersion (Tussyadiah et al., 2017). This immersive quality is a key feature of the VR encounter (Doumanoglou et al., 2018), characterized by both physical and psychological elements. The physical aspect relates to the user's isolation from the real world, encapsulating the user within the digitally generated environment (Guttentag, 2010). Simultaneously, psychological presence is cultivated, transcending the visual and auditory components to create a holistic perception of being present within the virtual realm. VR encapsulates a transformative blend of cutting-edge technology and human experience. By allowing users to actively shape and engage with computer-generated environments, VR redefines the boundaries of traditional interaction and beckons the exploration of novel dimensions where the virtual and the real seamlessly coalesce. The evolving definitions of VR underscore its dynamic nature and the ongoing quest to push the boundaries of what is possible in creating immersive and interactive digital experiences.

Virtual Reality (VR) redefines user engagement by transcending physical boundaries, with key elements being immersion, interaction, and imagination, which form the basis of VR's defining characteristics. Advancements in technology promise increasingly immersive and authentic digital worlds, blurring the line between reality and the virtual realm (Sheriran, 2000). The term "augmented reality" (AR) denotes the integration of technologies that seamlessly blend real-time computer-generated content with live video displays (Mekni & Lemieux, 2014). Derived from virtual reality techniques, AR interacts with the virtual world and exhibits a degree of interdependence with the real world. In essence, AR offers a direct or indirect representation of the physical environment in real-time, enhanced by the addition of virtual computer-generated data. By bringing digital information and virtual objects into physical space, AR animates the captured image on devices like phones or tablets. The primary AR objective is to enhance the user's life by introducing virtual information into their immediate environment and any indirect view of the real environment, such as live video (Carmigniani et al., 2010). While some definitions of AR stipulate the use of head-mounted display (HMD) screens (Mekni & Lemieux, 2014), a more inclusive definition involves a system with the following characteristics: (i) a combination of real and virtual elements, (ii) real-time interactivity, and (iii) content registered in 3D format (Attila & Edit, 2012). This broader definition accommodates various technologies, including mobile devices, while preserving the essential components of AR. Moreover, AR enables users to perceive the real world with virtual objects seamlessly integrated or superimposed onto their surroundings. Consequently, AR complements reality rather than a replacement (Edwards-Stewart, Hoyt, & Reger, 2016, Bouzis, & Poulaki, 2022). In summary, while AR/VR shares similarities, they represent distinct technologies with unique capabilities, contributing varied user experiences.

Similarities	Differences
Fundamentally, AR and VR share a common goal: enhancing user experiences.	Augmented reality overlays digital information onto real-life images and contexts. In contrast, virtual reality immerses users in an entirely new computer-generated world, allowing experiences like virtual city flyovers without physically leaving the ground.
Once deemed futuristic, both AR and VR have become tangible technologies, finding widespread application across various fields, with a particular emphasis on entertainment.	Virtual reality replaces the real world with a simulated environment, providing an immersive experience, whereas augmented reality enhances the existing environment without replacing it.
Both technologies play integral roles in education, business logistics, and healthcare, offering transformative possibilities, such as enabling remote surgery in the medical field.	Virtual reality typically constructs an entirely computer-generated world, while augmented reality integrates virtual components into the real world, creating a new interaction layer.
	Augmented reality is versatile, and compatible with various digital devices like laptops, tablets, and smartphones, requiring only a camera. In contrast, virtual reality demands specialized systems designed explicitly for its use.

*Table 1: AR/VR main similarities/differences  
(Source: Author(s) research)*

### 3. AR AND VR APPLIANCE IN CULTURAL TOURISM: SWOT APPROACH

From a general standpoint, SWOT analysis comprehensively examines the internal and external factors shaping an organizational environment. This strategic evaluation method involves meticulously reviewing key characteristics within and outside an entity to pinpoint critical elements influencing the company's future trajectory (Helms and Nixon, 2012).

The outcomes of this analysis, which encompasses both the environmental and strategic factors, serve as invaluable decision-support tools during formulating a chosen strategy. In essence, SWOT analysis as a foundational approach to environmental analysis, providing a structured framework for organizations to assess their competitive landscape. The acronym SWOT encapsulates the four critical dimensions under scrutiny: Strengths (S), Weaknesses (W), Opportunities (O), and Threats (T). Each element corresponds to a distinct aspect of the internal and external business environment, offering a comprehensive perspective that facilitates informed decision-making and strategic planning. By delineating a company's strengths and weaknesses, SWOT analysis enables a precise understanding of its internal landscape, aiding in identifying areas for improvement and optimization. Simultaneously, exploring external opportunities and threats equips decision-makers with insights into potential avenues for growth and the challenges that may impede progress. To sum up, SWOT analysis emerges as a fundamental tool for organizations seeking a systematic and holistic assessment of their environment. By elucidating the interplay between internal and external factors, SWOT analysis not only enhances strategic decision-making but also serves as a foundational step toward ensuring the sustained success and adaptability of a business in a dynamic and ever-evolving landscape. Based on relevant literature (Kulakoğlu-Dilek, Kizilirmak, & Dilek, 2018; Han et al., 2019; Garbin Praničević, 2021; Siddiqui, et.al, 2022), the SWOT analyses in the context of AR/VR appliance in cultural tourism results with quite challengeable items. According a/m literature the main *AR/VR strength* in cultural tourism are derived due to AR/VR: (i) enhance and expand cultural tourism offerings, fostering industry growth, (ii) its related tools simplify the promotion of cultural tourism, reaching a broader audience and increasing the visibility of cultural destinations, (iii) rejuvenate travel agencies and tour operators, countering the trend of tourists organizing their own trips, (iv) empower tourists to explore attractions remotely, evaluate preferences, and make informed travel decisions, (v) transport users to the past, providing sensory experiences in historical settings that were previously inaccessible, (vi) offer a comprehensive tourist experience while minimizing the negative effects of mass tourism on cultural heritage, (vii) serve as supplementary attractions, enhancing existing tourist offerings, and (viii) AR and VR serve as powerful tools for educating and entertaining tourists while minimizing negative impacts on attractions and the environment. According to a/m literature, the main *AR/VR weaknesses* in cultural tourism are derived due to AR/VR: (i) are still evolving, with issues like high costs, large software sizes, heavy devices, and graphic limitations, (ii) some individuals, especially the older generation, may have reservations about information technologies, making it challenging to introduce advanced tech solutions to them, (iii) can't fully replace physical authenticity, as tourists do not physically exist within the historical context, (iv) reduce personal contact and human connection, (v) is expensive due to limited technology accessibility and thus unaffordable for many potential users, (vi) produce discomforts such as nausea and dizziness due to the immersive effects, and (vii) prioritize the overall experience over souvenir shopping. According to a/m literature the main *AR/VR opportunities* in cultural tourism are derived due to AR/VR: (i) help minimize the impact on cultural heritage sites, ensuring their long-term preservation, (ii) contribute to the better preservation of natural attractions and environmental sustainability, (iii) enhance accessibility for individuals with disabilities and older visitors, even in remote locations, (iv) provide a visual glimpse of the past, making historical and cultural sites more engaging, (v) make it possible to present historical events in a realistic and real-time manner, (vi) rapidly growing trend in tourism, catering to increasing demand, (vii) allow limitless creative possibilities, and (viii) eliminate bureaucratic, security, and language barriers, making them accessible to a wide range of visitors. Finally, according to a/m literature, the main *AR/VR threats* in cultural tourism derived from AR/VR may: (i) limit interactions between tourists and local communities, affecting the effective communication of cultural specifics, (ii) lead to a



decrease in the appeal of in-person visits to museums, (iii) push developing countries potentially falling behind more developed nations, (iv) had undefined tax framework, (v) lead to social isolation and reduced face-to-face interactions, (vi) not stimulate other sectors in the destination, lacking the multiplier effect seen in traditional tourism, (vii) result in job losses, changing the employment landscape in the tourism sector, (viii) lead to monopolies, reducing the variety and quality of offerings by other providers. A more concise overview of a/m explained SWOT items is enclosed in Table 2:

<b>Strengths</b>	<b>Weakness</b>	<b>Opportunities</b>	<b>Threats</b>
i. Advancement of cultural tourism	i. Technological limitations	i. preservation of cultural heritage sites	i. reduced cultural interaction
ii. promoting cultural heritage	ii. negative initial impressions	ii. sustainable tourism and environmental protection	ii. impact on physical tourism
iii. marketing aid for agencies	iii. distancing from real experiences	iii. accessibility for diverse visitors	iii. economic challenges for developing nations
iv. pre-visit cultural assessment	iv. lack of tourist interaction with locals	iv. time travel	iv. unclear taxation policies
v. sensory immersion	v. high costs for users	v. achieving the impossible	v. contribution to antisocial behavior
vi. minimizing tourism impact	vi. physical and psychological discomfort	vi. development potential	vi. effects on other tourism sectors
vii. creating additional destination attractions	vii. inability to purchase souvenirs	vii. limitless design	vii. employment impact
viii. enhancing user knowledge		viii. elimination of barriers	viii. monopolization and competition

*Table 2: SWOT items (in order of appearance as in text above)  
(Source: Author(s) research)*

AR and VR have the potential to greatly enrich the cultural tourism experience by making it more interactive and accessible. However, they also come with various challenges, including accessibility, cost, content quality, and ethical considerations. Integrating these technologies into cultural tourism requires careful planning, investment, and consideration of tourists' and cultural institutions' unique needs and expectations.

#### 4. DESIGN/METHODOLOGY APPROACH

Effective research lies in its flexibility and disciplined approach (Tiu Wright, 1996). The use of in-depth interviews is considered a solution in investigating “Why?” especially when the need to generalize the results is unnecessary. In-depth interviews (Hollway, & Jefferson, 1997) are preferable when the investigation is oriented to determine motivation, perceptions, or beliefs (Milena et al., 2008). An in-depth interview is a medium for researching the interaction between a person and a field of research, as it means an internal view or an internal exchange of opinions between people, where the generativity of the interview method rests on the researcher's interpersonal skills (Kvale & Brinkman in Marshall & Rossman, 2011, p. 145). In qualitative research, there is never a perfect match between the questions, answers, and final findings, so citations make it possible to assess the relationship between the original data and the researcher's interpretation (Schostak, 2006, p. 161). Citations: (1) provide evidence that the researcher's interpretation is appropriate; (2) they show language and behavior since the use of language is a means of conveying meaning and action; (3) show the experience of the text, as the participants adequately express how they make sense of their development and enter into the presentation and interpretation of the findings (Boeije, 2010, p. 201). In general, open-ended or qualitative interviews are divided into (1) unstructured, (2) in-depth, and (3) semi-structured interviews; in terms of content, they are divided into (1) thematic, which include only one subject of interest; (2) the life story interview, which focuses on the life narrative of the interviewee (e.g., key informant interviews); (3) elite interview, which is an interview with a high-ranking or well-known individual, while (4) an expert interview term for an interview with informants who have professional-practical expertise on a certain topic (Boeije, 2010, pp. 62-63). Through in-depth interviews, open-ended questions such as: “What do you think about ...?” allow for unexpected and potentially valuable information (Ancona, 2012, p. 9). Qualitative researchers are looking for a better understanding of what is happening, so in-depth interviews are usually not fully structured in content, formulation, sequence, and answers, nor are they fully open as the researcher prepares topics (e.g., a semi-structured interview). We mutually complemented the research process of qualitative interviews (Silverman, 2006): (1) the positivist approach to interviewing was based on tested qualitative interviews with the aim of mutual comparison; (2) the emotional approach to interviewing dealt with the more emotionally sensitive topic of personal experience; (3) we implemented a constructivist approach to interviewing to understand and co-create the phenomenon. The comparative method is meaningful and feasible (also) within smaller qualitative data collections (Silverman, 2006, p. 8). Researchers working within a narrative paradigm frequently engage in in-depth conversations (Voutsina, 2018) with participants. Analysis and interpretation of these conversations often involve reducing long stretches of text to codes and recombining the codes into themes that move across stories, people, and contexts (McCormack, 2004). This study employed qualitative research methods, specifically utilizing an expert interview with informants who have professional-practical expertise on AR/VR appliances in cultural tourism. Operating as a semi-structured interview, the in-depth interview was chosen to capture comprehensive and detailed answers to the questions posed, offering a high degree of flexibility to the interviewees. All interviews are realized in Croatia at the end of May 2020. The first interview was conducted with the head (Respondent 1) of the Museum of Krapina Neanderthals in Krapina<sup>1</sup>, Croatia. The Museum offers its users a virtual walk through the museum exhibit using a multimedia DVD in which users can explore each exhibit room independently or with the help of an audio guide, music sounds from the museum and special ambient music accompany more than 100 virtual panoramas. The audio guide educates users with stories about the discovery in Krapina, the world's origin, and its evolution to the present day, with an automatic Museum virtual tour.

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<sup>1</sup> <https://mkn.mhz.hr/#>

The second interview was conducted with the director (Respondent 2) of the Magic Croatia tourist agency<sup>2</sup> in Zadar. The Agency offers a Visitors City tour with a virtual reality experience, where visitors are guided through the city by a licensed guide to 8 of the most attractive locations where, with the help of VR glasses, they discover what Zadar looked like in different historical periods. In addition to the virtual displays, an audio guide provides the most important information about Zadar and historical events in 7 languages. The third interview was conducted with the Diocletian's Dream project<sup>3</sup> leader (Respondent 3) in Split. The Project has been a newly opened virtual reality experience attraction in Split. It is an animated film of the history of Diocletian's Palace that visitors can experience using VR glasses upon entering their space. Users go back to the ancient year 305 during the time of Emperor Diocletian and, through an appealing scenario, way entertainingly learn about Split history. A set of questions regarding SWOT framework was thoughtfully crafted, each directly related to the respondents' experiences with AR/VR technology usage in cultural tourism. All three respondents, who serve as managers of cultural institutions actively employing AR/VR technology, were presented with the same questions. These open-ended questions allowed participants to provide responses relevant to the given inquiries. Additionally, an eighth supplementary question was included to allow participants to offer further insights on the subject, make suggestions they considered significant for the overall interview, or provide any additional information they believed would be valuable for the examiner's final analysis of this topic.

## 5. RESULTS OUTPUT AND INTERPRETATION

Table 3 contains quotations/respondent's answers to the question:

*What would be the strengths/weakness/opportunities/threats according to your up-to-date experience with AR/VR use in cultural tourism?*

*Table following on the next page*

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<sup>2</sup> <https://magic-croatia.hr/izleti/virtualna-setnja-kroz-povijest-zadra1/>

<sup>3</sup> <https://diocletiansdream.com/#about>

	<i><b>Respondent 1</b></i>	<i><b>Respondent 2</b></i>	<i><b>Respondent 3</b></i>
<i><b>Strengths</b></i>	<i>Given that the Museum has several thousand pieces of fossil remains, when creating multimedia and virtual content, it was easier to choose attractive objects for presentation to visitors within the museum's display. When using objects in a virtual sense, you get an attractive "product".</i>	<i>The use of VR glasses in tourism allows users to see what, until now, they could only hear and imagine based on the story told. The user is in a 3D world, content is displayed around him, and he feels as if he is part of the story, as if he is participating.</i>	<i>The main strength in our case is that it is a new and unique product on the market (USP - unique selling point). This form of technology represents a new medium and is still not sufficiently developed, but certainly, the demand is still greater than the supply, which ensures the further development of this product.</i>
<i><b>Weakness</b></i>	<i>Multimedia (installations) is extremely expensive, maintenance is very expensive and delicate. Often, experts for individual installations are not located in Croatia, so it is very difficult to work remotely. Also, it would be best to have an expert employed at the Museum who would always be your first aid. When such virtual installations are installed, it is important to keep in mind their maintenance. After a few years, it is difficult to find a replacement or spare parts or they no longer exist.</i>	<i>People who are not familiar with the technology of VR glasses, who have not used VR glasses and do not know how they work, have a harder time deciding to use VR glasses and conclude that they are not interested in using them until they are persuaded to try them - then everyone is delighted with the content and the result they see.</i>	<i>The weaknesses are that our project is still in its infancy, the whole VR technology is in development, and there is much room for improvement. VR technology is like computer games ten years ago, which were not yet developed enough. Although the technology has developed a lot, it is still nowhere near its peak, and it will take a lot of investment and effort to realize that potential.</i>
<i><b>Opportunities</b></i>	<i>Innovation in the presentation of the museum theme. Something that is not common in other museums, and multimedia is something that visitors do not expect in museums. Unfortunately, even today, the common opinion is that museums are dusty and boring places... So, something new, attractive, and unusual, a prehistoric theme told in a modern way, is a winning combination.</i>	<i>By displaying content through VR glasses, you can show a past event, buildings that no longer exist, people, clothing styles... there are a lot of possibilities, you just have to be creative. Also, VR glasses have speakers, so you can hear stories, interesting facts, and facts about everything you see through the glasses. A complete experience can be provided to the user.</i>	<i>The opportunities of VR technologies are great, and as the most important, I would point out the combination of modern technologies with significant cultural heritage and history. I think it is the most effective thing that can be done, and people love it when some things from history that would otherwise be forgotten or insufficiently understood come to life.</i>
<i><b>Threats</b></i>	<i>Threats in such a way of presenting museum materials are hacker attacks and viruses (Internet).</i>	<i>Technology is advancing rapidly, and new models of VR glasses are coming to the market. Also, programs that create animations and 3D content are constantly updated. Creators and authors must constantly follow trends, invest in improvements, and improve content and devices, and this costs.</i>	<i>Technology is constantly advancing, and each upgrade requires large financial costs. Also, one of the threats is the possibility of product copying by competitors.</i>

*Table 3: Respondent quotations by SWOT items  
(Source: Author(s) research)*

Regarding AR/VR strengths, the findings indicate as follows: Respondent 1 values the ease of selecting engaging objects from the museum's fossil collection for multimedia, enhancing virtual presentations. Respondent 2 highlights the transformative power of VR glasses in tourism, offering users a vivid 3D experience beyond imagination. Respondent 3 emphasizes their technology's unique selling point (USP), noting its market novelty, recognizing its current development stage, and expressing confidence in sustained demand for ongoing evolution. Regarding AR/VR weakness weaknesses, the empirical findings briefly indicate that Respondent 1 stresses the challenges of costly and delicate maintenance for multimedia installations, underscoring difficulties in finding external experts and the importance of on-site expertise. Respondent 2 observes initial skepticism toward VR glasses but notes a positive perception shift after firsthand experience.

Respondent 3 acknowledges their VR project's early stage, drawing parallels to the past development of computer games, highlighting the necessity of substantial investment for its full potential. As far as *AR/VR opportunities* are considered, the empirical findings briefly indicate as follows:

- Respondent 1 advocates for innovative museum presentations, emphasizing the appeal of multimedia to break the stereotype of museums as dull places.
- Respondent 2 underscores the creative possibilities of VR glasses in showcasing historical events and providing a comprehensive user experience with visual and auditory elements.
- Respondent 3 sees significant opportunities in combining VR technologies with cultural heritage and history, bringing forgotten or misunderstood aspects to life and resonating well with people.

Regarding AR/VR threats, the empirical findings indicate as follows: Respondent 1 identifies threats in presenting museum materials, citing concerns about hacker attacks and viruses online. Respondent 2 points out the rapid advancements in technology, necessitating continuous investment by creators to stay current with VR glasses and content creation tools. Respondent 3 highlights ongoing financial challenges due to technological advancements and expresses concerns about competitors' potential for product copying.

## 6. DISCUSSION AND CONCLUSION

Drawing from examining professional, scientific literature and stakeholder interviews, our findings reveal distinct strengths, weaknesses, opportunities, and threats in integrating virtual and augmented reality technology within cultural tourism. As far as the empirical part is considered, it can be concluded that significant efforts must be dedicated to the better integration of VR/AR technology in cultural product development, thereby enhancing authenticity and broadening the cultural offerings at destinations. Cultural entities in Croatia ought to stay abreast of the latest technological advancements, channeling their creative energies toward leveraging Croatia's rich cultural heritage. This strategic focus is core to delivering unique and extraordinary experiences to visitors, effectively showcasing the cultural wealth of Croatia engagingly and innovatively. However, some potential challenges and considerations regarding AR/VR in cultural tourism have to be additionally pointed out. The same can also set the direction for future related research. Following above, (i) the challenge is to ensure that the content presented through AR/VR applications accurately reflects the historical and cultural context. Low-quality content can negatively affect a cultural site's user experience and perception. Also (ii) some users may be hesitant to adopt AR/VR technologies due to unfamiliarity or concerns about comfort and health issues (such as motion sickness). (iii) AR/VR experiences often require a robust technological infrastructure. In some cultural tourism sites, especially in remote or less developed areas, the lack of high-speed Internet or adequate hardware may prevent the implementation of AR/VR applications. Furthermore, (iv) developing high-quality AR/VR experiences can be expensive for some destinations. Cultural tourism sites, especially smaller ones or those in developing regions, may face challenges in financing the development and maintenance of AR/VR applications. (v) Ensuring compliance with local regulations and addressing privacy issues is also one of the challenges the AR/VR industry is increasingly facing. The next challenge (vi) is to create AR/VR experiences that entertain and educate visitors about the site's cultural significance. Achieving the right balance between entertainment and education is crucial to the success of these cultural tourism applications. The field of AR/VR is developing rapidly, so keeping up with technological progress can be also a challenge (vii). Cultural tourism stakeholders must keep abreast of new developments to ensure their applications remain relevant and competitive.

And, in the end, (viii) the cooperation between cultural institutions, technology developers, and other stakeholders is the last but not the least respectful challenge in the context of the analyzed topic. In conclusion, as the field of AR/VR in cultural tourism continues to evolve, addressing these challenges while preserving the cultural and historical integrity of sites become of crucial importance for maintaining future desirable visitor experiences.

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## INNOVATION ECOSYSTEM AND ARTIFICIAL INTELLIGENCE: A BIBLIOMETRIC ANALYSIS

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### ABSTRACT

*The rapid development of AI has reshaped the perspectives on technological progress and innovation. In this context, our objective is to assess the current level of research through bibliometric and systematic literature review and to compare the results with the expected market demand. The present paper will act as a snapshot of the current situation in the research sphere regarding AI as a consumer and producer of innovation. This exploration will uncover the dynamics between AI and innovation, providing valuable insights into emerging topics, the maturity level, and the main actors impacted by these transformations. The results will not only serve as a starting point but will also highlight possible leads for further research in the field, guiding scholars and practitioners toward a deeper understanding of the evolving landscape at the intersection of AI and innovation.*

**Keywords:** *Artificial intelligence, Bibliometric analysis, Digital transformation, Innovation, Knowledge*

### 1. INTRODUCTION

Throughout history, innovation has been the driving force between progress and transformation, linked to evolution and technology. In the current landscape, artificial intelligence (AI) has been perceived as the new era of innovation. First introduced in 1950 by Alan Turing, the concept would become a transformative catalyst by reshaping and redefining industries and opportunities.



The synergy between innovation and AI overlaps in various domains, from medicine to finance and supply chain. Furthermore, it is set to address some of the most pressing global challenges, such as climate change, healthcare access, and resource allocation (Jimma, 2023). Examples from all fields have proven the potential for growth and development: healthcare through precise results and efficient doctor-patient interactions (Eltawil et al., 2023), education through interactive and personalized lessons (Uzumcu and Acilmis, 2023) etc. However, caution is recommended to avoid biased results (Terranova, 2023). Societal adaptation to change should also be considered, as AI and derived technologies will add complexity and force the population towards learning new or upgrading gained skills. The pursuit of innovation in the AI era must be built on ethical principles, transparency, and inclusion to ensure that the benefits are widely distributed, and that society reaps the rewards of this technological revolution. Such challenges should be subject to scientific research and business objectives for sustainable development, by finding, understanding, and simulating all possible implications of AI innovation. This article aims to explore the relationship between AI and innovation, delving into the latest developments, challenges, and opportunities that this transformative technology offers. Through bibliometric analysis and systematic review, we aim to investigate how this connection is defined, what are the main development areas, what is the state of art, and how it will advance. The study consists of a review of the scientific literature, the applied methodology, results, and discussions.

## **2. LITERATURE REVIEW**

In the battle over market supremacy and over gaining or keeping a comfortable competitive advantage, artificial intelligence became a must due to its numerous applications and information pool. As a result, companies all over the world have divided into two main branches, the ones that use such technologies, and the ones that offer AI products. For the second category, the adoption of artificial intelligence is implied. And the expectations can be synthesized into high profits, sustainability and significant wins for the innovation ecosystem and scientific community. In line with the assumptions stated above, our study aims to present a view on the current state of artificial intelligence and its contribution to the innovation ecosystem, as well as to determine the main research pillars of this relationship, having the following questions as main drivers.

- How does the scientific literature define the connection between artificial intelligence and innovation?
- What are the main groups of research topics defined by the linkage between AI and innovation?
- Can the analysis outline the next “hot topics” in AI research?

The current chapter will act both as a synthesis of the research state on the bibliometric analysis of artificial intelligence and as a qualitative analysis of the impact of this technology over innovation and digital transformation.

### **2.1. Bibliometric studies on AI**

Until now, several bibliometric analyzes have been performed to assess the influence of artificial intelligence in numerous domains such as medicine (Jimma, 2023; Wang et al., 2023; Zhang et al., 2023), digital transformation of business (Riahi et al., 2021; Ogorean, 2023; Singh et al., 2023 A), new technologies (Godell et al., 2021; Marques et al., 2023), or sustainable development (Cheng et al., 2023; Singh et al., 2023 B). Table 1 shows some of the most recent bibliometric studies that included general topics related to artificial intelligence and its impact.

Authors	Period	Data source	Number of observations	Covered topic
Espina-Romero et al. (2023)	2018-2022	Scopus	233	AI and industries
Liu and Duffy (2023)	2016-2022	WoS	1320	Applications of AI
Romero-Riaño et al. (2021)	2010-2019	WoS	8334	AI and research areas
Ho and Wang (2020)	1991-2018	WoS	15510	Methods and technologies related to AI
Song and Wang (2020)	2000-2019	Scopus	9519	AI holistic effects
Gao et al. (2019)	2008-2018	WoS	12301	Application technology in AI
Lei and Liu (2019)	2007-2016	WoS	1188	AI and research areas
Alonso et al. (2018)	2000-2017	Scopus	3737	Application technology in AI
Niu et al. (2016)	1990-2014	WoS	22072	Applications of AI

*Table 1: Bibliometric studies on artificial intelligence  
(Source: Authors' research)*

Three topics have been determined from the literature review, namely the directions followed when enhancing AI capabilities, holistic and targeted applications and effects of AI over research areas and industries, technologies developed in parallel to it. In other words, we can see it simulating the human mind or learning from natural life systems (Gao et al., 2019) based on current demand from different fields such as engineering or environmental studies (Lei and Liu, 2019).

## 2.2. Systematic review of the AI and innovation relationship

By concentrating our study on the relationship between artificial intelligence and innovation, we have discovered several directions that the scientific community plans to follow. The first one is represented by knowledge management and its derivatives such as data acquisition, findings sharing, and ethics (Mesa Fernández, 2022; Stahl, 2022; Zahlan et al., 2023), followed by a second group related to enhancing capabilities, which Gama and Magistretti (2023) describe as the business transformation driven by AI to become an innovative actor on the market. This cluster can also incorporate decision making support and sustainable development of a company. The third path describes the integration of AI into the innovation lifecycle, meaning that policymakers can use its capabilities to choose promising results and innovations, while companies can strengthen their strategic development through targeted investments (Massri et al., 2023). Nonetheless, another development path is represented by the theories and methods used to enhance AI capabilities and implicitly, contribute to the innovation ecosystem (Mariani et al., 2023).

## 3. METHODOLOGY

Two databases have been compared as prerequisite for the analysis, Web of Science and Scopus. While the latter offers a larger number of publications, WoS considers a wider period, making it more efficient in determining an accurate view. Moreover, criteria such as quality and reach of papers and metadata markers have tipped the decision towards it, instead of Scopus or both. Several authors have highlighted similar reasons, including Shukla et al. (2019), Gao et al. (2019), Liu et al. (2022), Xu et al. (2022), Karbasi et al. (2023). The search criteria included all titles that contain artificial intelligence or AI combined with innovation.

Thus, the query has been the following: ((TI=(artificial intelligence)) OR TI=(AI)) AND TI=(innovation). No other filter has been applied, allowing all types of publication and all years to be included. These settings will provide us with a full picture of the innovative implications of artificial intelligence, as well as the impact of this technology on the innovation ecosystem. The Web of Science platform has offered 392 results for the range between 1976 and 2023. Two review techniques have been chosen to test the hypothesis for comparison purposes and a full picture record, namely systematic literature review and bibliometric analysis. Although the first method has been already presented in the previous chapter, the second method will be assessed further in the results section, together with an exhaustive comparison. According to the evaluation of the two approaches made by Donthu et al. (2021), both should present a complete picture of the relation between AI and innovation, on the one hand, from a quantitative perspective by finding patterns on large data sets, and from a qualitative view by highlighting the reasons behind different connections. For the quantitative analysis through bibliometric study, we have chosen the R package bibliometrix, developed by Aria and Cuccurullo (2017), for its comprehensive library and vast techniques and visualizations, as well as VOSviewer, created by van Eck and Waltman (2022) for the enhanced mapping applications. The pool of indicators has been derived from Donthu et al. (2021), constrained by the tool capabilities. The metrics are presented in Table 2.

Indicator	Method*	Tool
Annual growth rate %	Performance analysis	Bibliometrix (R)
Average citations per document	Performance analysis	Bibliometrix (R)
Average citations per year per document	Performance analysis	Bibliometrix (R)
Average total citations per year	Performance analysis	Bibliometrix (R)
Most relevant sources	Performance analysis	Bibliometrix (R)
Annual scientific production	Performance analysis	Bibliometrix (R)
Scientific production per country	Performance analysis	Bibliometrix (R)
Annual authors' production	Performance analysis	Bibliometrix (R)
Collaboration between countries	Science mapping	Bibliometrix (R)
Co-citation network	Science mapping	Bibliometrix (R)
Co-word analysis	Science mapping	Bibliometrix (R), VOSviewer

*Table 2: Metrics used for bibliometric analysis*

*(Source: Authors' research based on methodology provided by Aria and Cuccurullo 2017, Eck and Waltman, 2020; Donthu et al., 2021)*

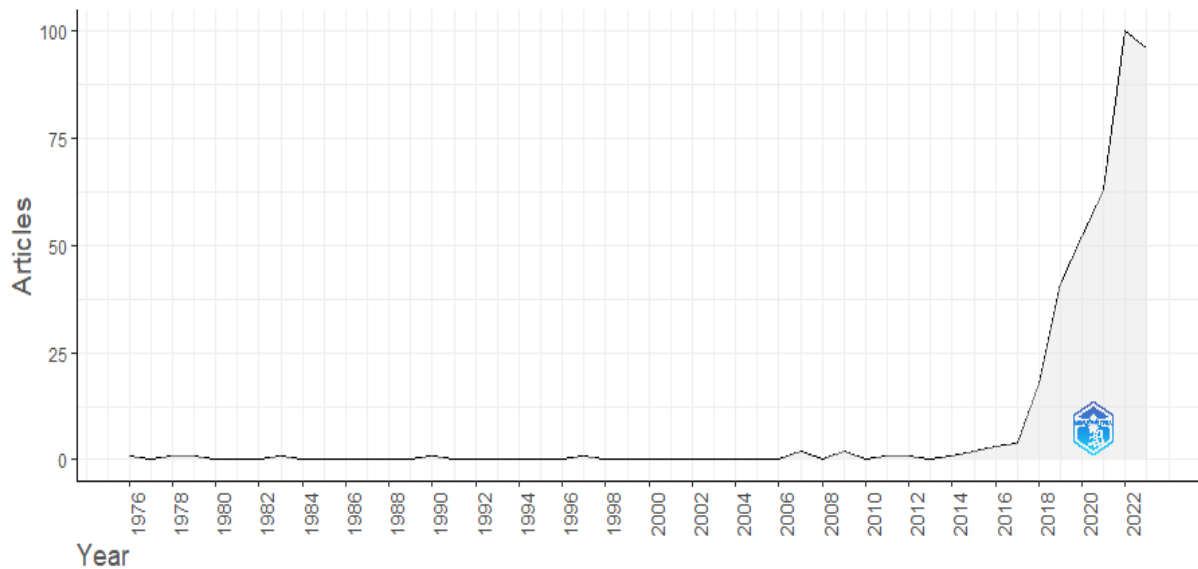
*\*NOTE: Methods according to the classification offered by Donthu et al., 2021.*

Although the indicators showing publication performance are self-explanatory, the science mapping uses clustering methods to determine groups of countries, references, or words for better representation of different concepts, topics, and relationships among defined observations. The data workflow used in the present study converges with Song and Wang (2020), Goodell et al. (2019), Riahi et al. (2021), Gradinaru and Matei (2022). The performance analysis has been applied on all observations, whereas the co-word analysis was limited to at least 5 occurrences for each word. Analysis using VOSviewer has extracted significant results using the authors' keywords as well as text mining on title and abstract.

#### 4. RESULTS

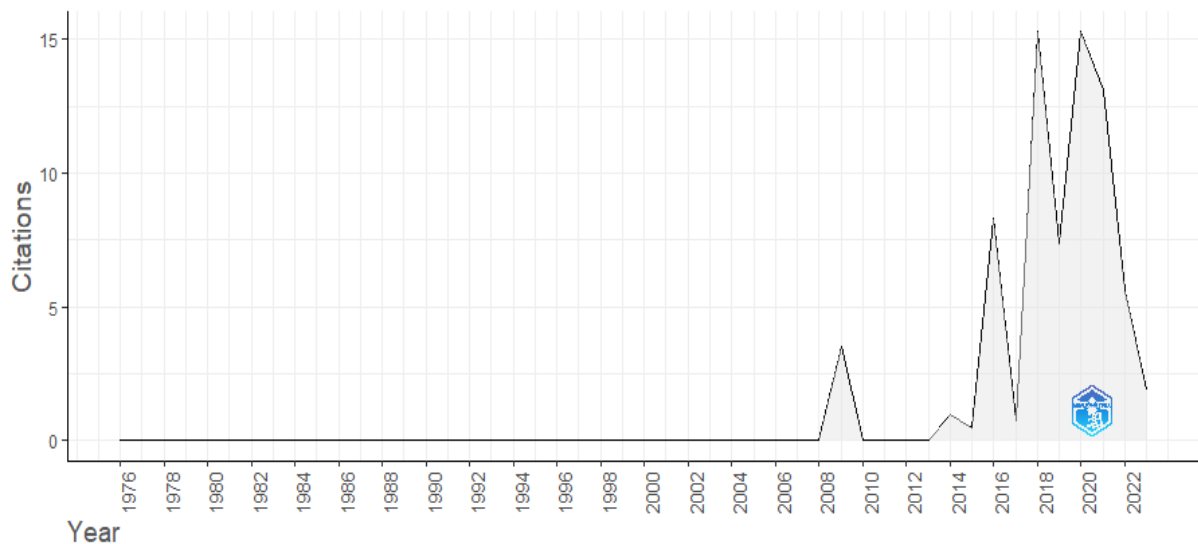
During the period considered, we can observe a nearly constant number of publications between 1976 and 2017, with an exponential increase starting 2018, as shown in Figure 1. This indicates a strong opportunity for the scientific community to focus their research on AI related topics and connections.

The annual growth rate was a 10.2% increase per year, with 7.6 citations per document and 2.7 citations per year per publication. Most relevant sources include Sustainability, Technological Forecasting, and Social Change, Wireless Communications & Mobile Computing, IEEE Transactions on Engineering Management, Technology Innovation Management Review, Journal of Business Research, and Journal of Intelligent & Fuzzy Systems.



*Figure 1: Total annual publications  
(Source: Authors' computation)*

A similar tendency can be depicted in Figure 2, which takes into account the average total citations per year of the selected articles.



*Figure 2: Average total citations per year  
(Source: Authors' computation)*

More than 30% of the selected publications were written by authors affiliated with institutions in China, followed by the United States and the United Kingdom, as stated in Figure 3. The country collaboration metric shows a powerful linkage between China and the US, as well as among almost all European countries, South Korea, Canada and Australia (Figure 4).

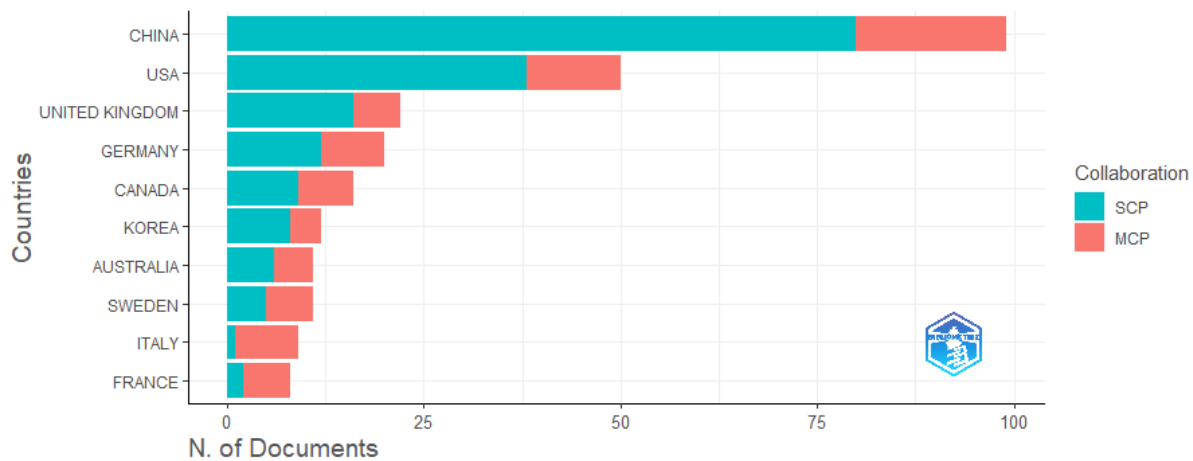


Figure 3: Most productive countries for the analyzed period, with split on single/multiple authorship.  
(Source: Authors' computation)

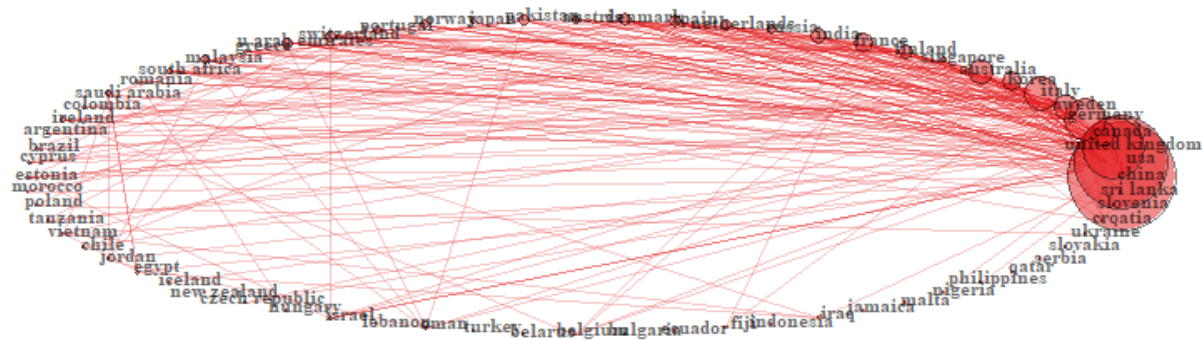


Figure 4: Collaboration between countries  
(Source: Authors' computation)

The co-citation analysis has discovered two main clusters, as highlighted by Figure 5, meaning two different topics that were treated when associating artificial intelligence with innovation. A deep dive into the most cited articles in each cluster has validated a first approach represented by the role that AI in developing sustainable digitalized organizations (Haefner et al., 2021), followed by the effects of the implementation, such as economic implications and adaptability of skills and business models (Davenport, 2021).

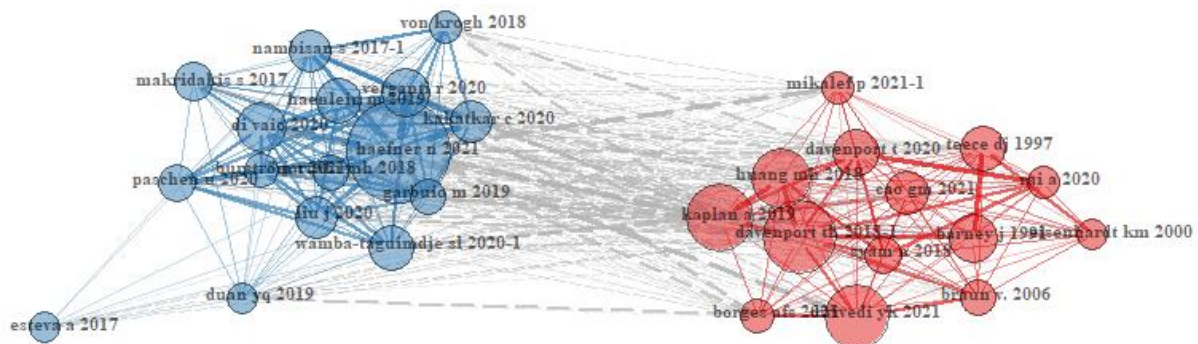


Figure 5: Co-citation network  
(Source: Authors' computation)

An interesting view is given by comparing Figure 5 with Figure 6. The authors of the most cited articles do not appear in the list of the main contributors to the research area.

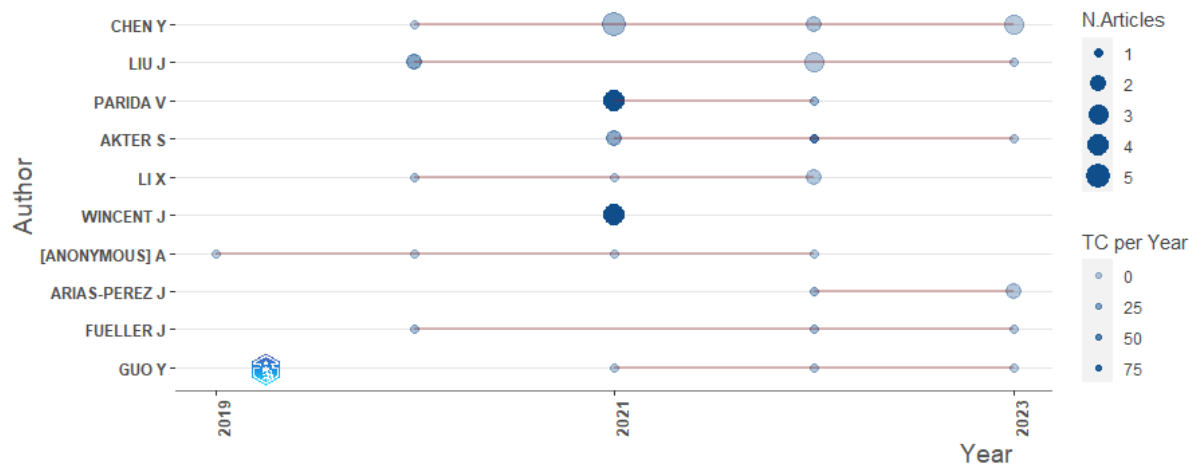


Figure 6: Authors' production over time  
(Source: Authors' computation)

The largest share in predicting future trends and influences is represented by the co-words analysis, from both the perspective of chosen keywords and of title and abstract text mining. By using the first source, we can deduce 4 clusters of topics that relate to artificial intelligence and innovation (Figure 7). The first one is defined by education and efficiency, fostering the need for research and experimentation in terms of AI effectiveness in different domains to determine the viability and short and long-term potential. The second cluster focuses on the business opportunity and proofs of concept to see how AI responds to the current challenges of an organization. The change of business model, further digitization, and effective organizational transformation appear in the third cluster, while the fourth one follows the connection with other innovation topics, including big data, deep learning, neural networks, and their application in medicine as a first pillar. From a popularity perspective, the keywords *company*, *effect*, *case*, and *challenge* occur the most, highlighting a special attention given to investigating the effects of AI for an organization to mitigate the risks.

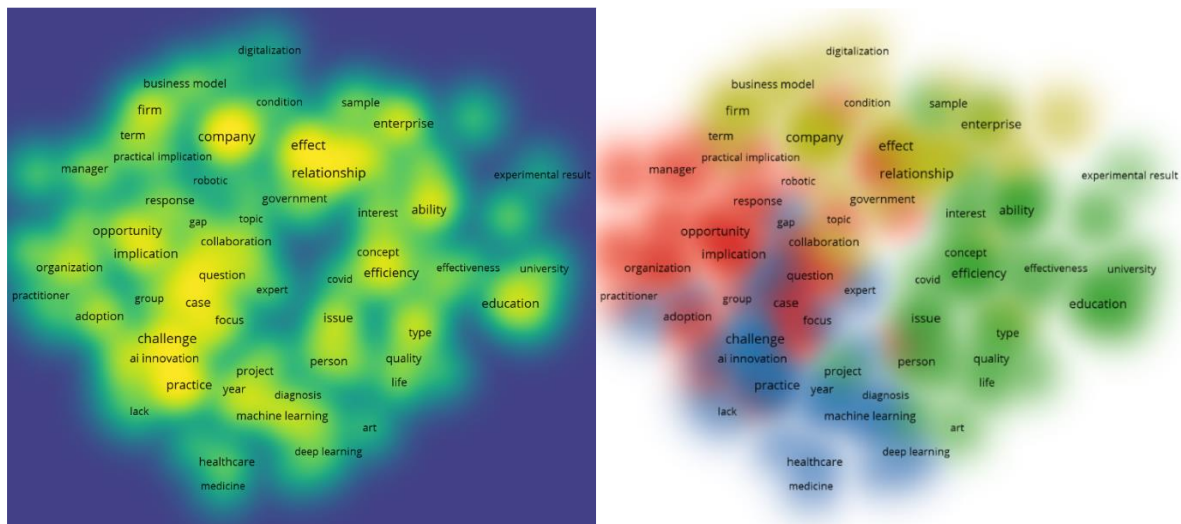


Figure 7: Co-word analysis from title and abstract (left: word frequency, right: clusters)  
(Source: Authors' computation)

A similar view is provided by the analysis of keywords, with a match found for three out of four clusters, while the business-related ones have been merged (Figure 8). Other outlying keywords can be assigned to the already existing groups.





The common ideas were represented by the conceptual framework from drivers to implementation and outcome, including business transformation and opportunities, as highlighted by Gama and Magistretti, 2023; Mariani et al., 2023, enhancement of AI capabilities (Mariani et al., 2023), while examples of particular connections between the studied concepts are given by Mesa Fernández, 2022; Stahl, 2022; Massri et al., 2023; Zahlan et al., 2023.

## 5. CONCLUSION

Quantitative and qualitative analyses have offered important results for the relationship between artificial intelligence and innovation. While the bibliometric study has grouped topics based on occurrence, the conclusions have been appended with niched research development paths to provide a complete view. Therefore, the connection between the two concepts involves several branches such as business transformation, economic and social effects, continuous development that increases complexity and promotes globalization (Song and Wang, 2020), knowledge management and sharing, ethics, and innovation lifecycle enhancement opportunity. Cluster identification and the detailed implications can be seen as novelty factors that this study has conducted, together with the results of bibliometric analysis focusing on artificial intelligence and innovation. The implications and risks of AI remain the hot points of both the research community and companies, as thorough simulations are highly recommended by both parties to have good control of the issues encountered. Geographic exploration has shown China and the US as the main contributors to the field research, while the co-citation analysis has recognized two main research paths: the role played by AI in developing sustainable organizations (Haefner et al., 2021), and the economic implications and adaptability of skills and business models as challenges for companies (Davenport, 2021). The limitations were mainly represented by different formats of metadata over different sources that prevented us from widening the search query capabilities. As further research, the focus would be on analyzing in more detail what share of innovation is AI driven, enhanced methods that could carry several other publication databases, perform efficient data cleansing and allow deep text mining, plus complex search criteria that could offer more targeted observations.

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## REFORMS IN MANAGEMENT AT HIGHER EDUCATION INSTITUTIONS IN SERBIA - MAIN CHALLENGES AND OBSTACLES

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### **ABSTRACT**

*The article discusses the key drivers of reforms in the management of higher education institutions in Serbia. The main challenges and obstacles in the implementation of the recommendations of the state audit institution are investigated. It means that the audit reports are examined in the context of methods and practices in the implementation of recommendations by which audit subjects undertake corrective actions, which contributes to management reforms and more successful and responsible use of budget funds. The analysis of the business of higher education institutions indicates that there is a significant need to improve management both in terms of compliance with legal regulations, as well as good management practices and compliance with the principles of efficiency and effectiveness, including achieving goals and reviewing the actual effects of activities in relation to the desired results. With this article, the author also wishes to emphasize that it is necessary to determine the norms and standards of work of higher education institutions in Serbia without delay, and that any delay and superficial monitoring of the situation in these institutions leads to further discrediting of all those responsible in the system of preparation, adoption, execution and control of higher education funding.*

**Keywords:** *internal audit, internal control, state audit institution, risk management, higher education*

### **1. INTRODUCTION**

The necessity of reforms in the management of higher education institutions was imposed due to the accession of Serbia to the EU (European Union) with the requirement to develop a system framework for all budget users based on monitoring work, increasing responsibility, as well as realistic and objective information to the public about their operations. From the aspect of economic and social development, education has a strategic importance and in this context it is necessary for the education system to be efficient, effective, quality and accessible. The focus of the modern concept of management in educational institutions requires new mechanisms, processes and activities by which a higher education institution establishes, maintains and improves quality in all areas of work. The reform processes required of higher education institutions in Serbia are currently at a critical turning point. The period of rounding off the normative framework has not ended, nor have the legal and by-laws been harmonized. The key reasons are the fact that these are extremely complex and demanding reform processes, which are mostly new for administration in institutions. Also, in the previous period, the ban on employment also applied to budgetary institutions in education, allocations from the budget have not changed for years, and reforms require funds and human resources with the necessary knowledge and expertise. If we consider that higher education is of strategic importance for the development of a country, and the reform processes have not taken root in full capacity, it seems necessary to invest additional efforts and establish an adequate management system in these institutions. The subject of research in this article is reform processes in the business of higher education institutions within four state universities. Higher education reforms throughout the region, especially in the context of joining the EU, set new demands, expectations and values that are imposed on the academic community.

A strategic approach to management, performance-based financing and quality assurance include mechanisms, processes and activities by which a higher education institution establishes, maintains and improves the quality of work in all areas. The framework of public policies for higher education in Serbia has undergone a number of changes in recent years, but the method of financing these institutions has not fully kept pace with the needs of development in terms of the development of corporate behavior at faculties, greater process efficiency and management towards outcomes. The attention of the authors of this paper is focused on the interdependence between the implementation of new management mechanisms that are required by law within the framework of reform processes, through the organization and documentation of the entire structure of institutions, viewed on the basis of the report of the state audit institution in the current practice of the operations of these institutions. The main challenge in further strengthening and implementing new management models is that at this point we cannot objectively see the dimensions of the necessary changes, nor the time frame of those changes. In higher education institutions in Serbia, there is insufficient fundamental understanding of the purpose of establishing a strategic model of management and financing according to performance, as well as the role of internal control in the management system, which is a prerequisite for the effective implementation of legal regulations in the field of internal financial control in the public sector. For these reasons, it is extremely important that the legal regulation enables the establishment of a flexible concept that will be able to respond to all challenges in the most painless way. With this article, the author wants to remove the perception of the existence of limitations for reform processes in higher education institutions, especially because such thoughts can prevent the achievement of the consent needed to initiate reforms in general, but also to point out the possibilities for overcoming the problem.

## **2. AN OVERVIEW OF PREVIOUS RESEARCH**

The higher education system in the Republic of Serbia is regulated by the Law on Higher Education (Official Gazette of RS No. 88/17 to 67/21, 2021), as well as other general by-laws enacted within the competent Ministry of Education, Science and Technological Development. The Law on Higher Education has undergone numerous amendments and additions since its adoption in 2005, which regulated the manner and performance of higher education activities and numerous other issues of importance for the improvement of the education system. The purpose, goals, directions, instruments and mechanisms of the development of higher education in Serbia are defined by the Strategy for the Development of Education in Serbia until 2020 (SROS-2020, 2012) which deals with the directions of development of the entire education system. This strategy represents the first attempt to approach education reform in a more comprehensive way, with a long-term insight into the needs for reforms and with the intention to monitor the implications of those reforms. Action plans were adopted later and their creation was organized with a clearly defined methodology and a time frame with clearly defined tasks.

The key strategic directions of long-term development have been determined, and what is important from the point of view of the research context of this work is a new management approach directed towards the concept of work quality. With the new paradigm of management, it was emphasized that all universities should fully integrate their functions in the field of strategic planning, to implement a system of financial management and control and budgeting according to performance. The starting point for the preparation of the Education Development Strategy in the Republic of Serbia until 2030 (SROVRS -2030, 2021) is the previous strategy (SROS-2020, 2012) which defined the development of education through 4 key strategic goals: quality, efficiency, relevance and coverage; ex-post analysis of the Education Development Strategy in the Republic of Serbia until 2020 (SROS-2020, 2012), three reports on the results of the implementation of the Education Development Strategy until 2020 and the accompanying Action Plan (SROVRS -2030, 2021).

The international documents crucial for the development of education in the Republic of Serbia are: The Agenda 2030, a document that refers to the global development agenda for the period after 2015 and whose fourth goal is dedicated to education and refers to the necessity of ensuring quality education, the promotion of inclusive education and lifelong learning (AGENDA 2030, 2015). Reforms in the field of education are also defined by the Strategy for the Western Balkans (EU COMMISSION, 2018) which has a focus on comprehensive reforms, and six leading initiatives, including the digital agenda, are particularly emphasized. The new strategy also created certain preconditions for increasing the quality of the educational process. In higher education, there have also been changes in terms of quality - the National Accreditation Body was formed, certain regulations, new instructions and standards for accreditation were adopted. (SROVRS -2030, 2021). However, the focus of this article is on reforms in the area of management aimed at increasing effectiveness, performance-based financing, the need for further improvements of quality management, efficiency and sustainability. The framework of public policies in the context of new management models has progressed significantly in the last 20 years, when it comes to reforms in institutions of higher education, although it is important to point out that the main improvements are the product of the efforts of certain institutions or even individuals directed towards reform processes. Serbia became part of the European Bologna process in 2003., which laid the foundation for the inclusion of Serbia in the European area of higher education (EACEA, 2017). Since then, progress in the reform of higher education has been achieved gradually, as described in the ex-post analysis of the implementation of the Education Development Strategy in the Republic of Serbia until 2020 (SROS, 2020). In the previous period, several significantly amended laws were adopted, including the Law on the National Qualifications Framework of Serbia from 2018, which contains eight levels of education and foresees the knowledge, skills and competences associated with each level that can be acquired through formal education, informal education and informal learning (Official Gazette of the RS", no. 27/2018, 6/2020 and 129/2021 - other laws), 2021). The National Qualifications Framework of Serbia is harmonized with the European Qualifications Framework (EQF), as explained in detail by the competent Ministry of Education, Science and Technological Development during its adoption. However, it is important to note that higher education financing and management were not part of these reforms. The financing of higher education in Serbia is under the mandate of the Ministry of Education, Science and Technological Development of the Republic of Serbia, which allocates funds directly to public higher education institutions and controls the spending of their respective funds. Higher education institutions that are the subject of research in this paper are financed from the budget, and private educational institutions do not receive any direct or indirect public funding. Due to the fact that state higher education institutions carry out their activities with funds provided by the founder, the governing bodies at the faculties are responsible to the competent ministry for the purposeful and economical spending of funds allocated from the budget. Norms and standards of work, as well as material resources for their implementation, are determined by the Government of the Republic of Serbia, on the proposal of the national council and according to the opinion obtained from the conference of universities and the conference of professional academies (Official Gazette of RS No. 88/17 to 67/21, 2021). State financing of educational institutions is based on input, which means that the allocation of funds is based on the real costs of the institution in relation to the number of students enrolled in the next academic year, and the number and structure of academic staff. Institutional funding of teaching covers the basic salaries of teaching and non-teaching staff based on a detailed set of input variables. In addition, institutional funding for scientific research work provides additional income to teaching staff engaged in this work. A key feature of the financing of higher education in Serbia, as well as in some other Eastern European countries, is the mixed model, according to which a number of students enroll in "budget places" ("places

financed by the state"), while others enroll in "self-financing places" in within one faculty (Higher Education Union of Serbia, 2023). This mixed model has implications for the financing of the institution (total amount of funds, internal distribution policies) and equality of access. Because that the state faculties rely to a significant extent on public funds, they are also characterized by a low degree of financial autonomy, and the degree of dependence varies among the faculty. In addition, relying on public funds does not provide sufficient incentives for faculties to optimize expenditures for active teaching related to the organization of identical study programs, or with the same or similar plans and programs and learning outcomes at different faculties (WB, 2022). In addition to public funds, the main sources of income at the faculties are: income from tuition fees and other administrative fees related to studying that are charged to self-financing students; additional financing of scientific research through domestic and international projects and provision of specialized services on the market to entities from the public and private sectors in Serbia or abroad. Tuition fees and various administrative fees are the most important source of income for faculties in the field of social sciences and humanities. Technical faculties are to a greater extent oriented towards cooperation and partnership with private companies, which enables them to generate their own income by providing services on the market. The financing model of higher education is the subject of numerous debates. At the global level, there is a noticeable trend of increasing the share of financing higher education from private sources. This trend is especially present in non-European countries, which are characterized by high tuition fees, but also by the active participation of companies in providing grants for their financing. For example, the OECD reports state that in 2000, the share of public funding in relation to private financing was 77%, then it dropped to 73% in 2005, and that level of share was maintained until 2009 (OECD, 2012). Data for Serbia was provided for the first time by the Conference of Universities of Serbia for the period from 2008 to 2014, thanks to the inclusion of Serbia in the European Association of Universities (EUA). According to these reports, Serbia actually represents an extreme example, where an increase in nominal financing of 32% in 2008 actually represents a drop of 10% when inflation is taken into account (EUA, 2014). Social changes in the transition period had an impact on changes in the way higher education institutions function and are organized. On the one hand, the University, higher education and scientific institutions independently decide on their organization and work in accordance with Article 27 of the Constitution of the Republic of Serbia, which guarantees the autonomy of the University (Official Gazette of the RS", no. 98/2006 and 115/2021), 2006), but the Law on Higher Education in Article 6 defines that the autonomy of universities and other higher education institutions means the right to dispose of financial resources and the right to use property in accordance with the law (Official Gazette of RS No. 88/17 to 67/21, 2021). From the point of view of financing higher education, public policy holders are not only concerned with mechanisms for the distribution of financial resources, but it is an integral part of a wider spectrum of public policy instruments used to achieve the desired social results with the use of public funds. Finding the right balance between investing in higher education, in a way that allows access to students from all social groups, while maintaining quality, requires proactive management and changes in the way higher education institutions function and are organized, emphasizing the obligation and responsibility of the institutions themselves to achieve sustainability. This requires proactive management and the establishment of an organizational structure that will respond to dynamic changes. In the new Education Development Strategy (SROVRS -2030, 2021) in the part related to the analysis of management effects, all the options provided in this document do not consider significant management and institutional changes, although certain organizational changes are implied. Apart from that, the assessment of the available capacities of the public administration in the field of education is positive, it is considered that there are enough available capacities, and only the improvement of the existing

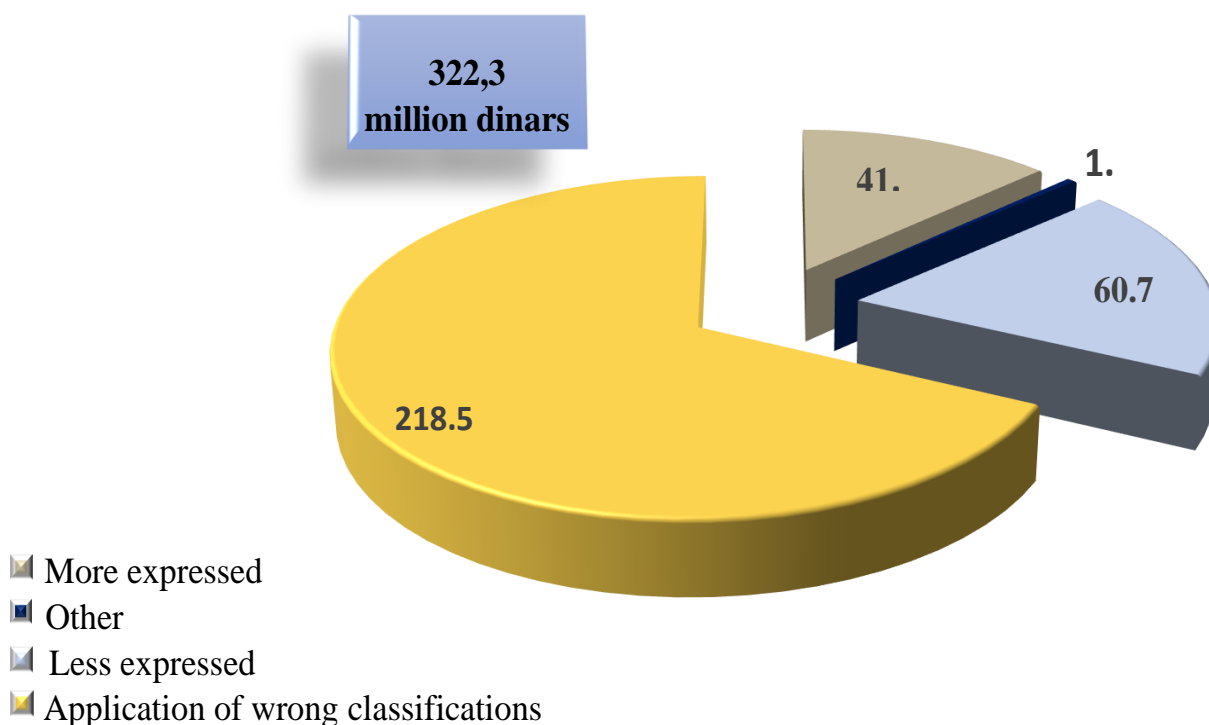
human capacities is foreseen, and no system expansions are planned. In Serbia, the framework of public policies in higher education contains several priorities and several basic prerequisites must be met in order to improve the efficiency of funding mechanisms and their orientation towards results, among them transparency and availability of data, effective quality assurance and accurate determination of costs (WB, 2022). For this reason, the management and financing of higher education institutions raises a number of questions, on the one hand, how much institutional autonomy and supervision do higher education institutions need to meet social expectations, and on the other hand to achieve the set of goals of public policies in the higher education system in a cost-effective manners.

### **3. RESEARCH CONTEXT**

The article seeks answers to the questions of how to ensure greater responsibility and efficiency, which includes the quality of higher education institutions in Serbia. The financing of education should be treated as a key policy lever in the Strategy for the Development of Education until 2030 and ensure synchronization with current reforms. Current input-based funding and distribution mechanisms do not allow funding to be used to improve equity or quality. The current Education Development Strategy however does not emphasize education financing as a crucial mechanism of public policies. It is also important to synchronize and harmonize education funding with other ongoing reforms in the sector. The methodological approach in this article is based on changes and new approaches to management in the context of methods and practices in the implementation of the recommendations of the state audit institution. The problem of article research is presented by researching the relevant aspects in the audit findings that examine the regularity of the operations of higher education institutions. Based on the identified errors and irregularities, it is possible to identify the dimensions and time frame of changes that will ensure continuous improvement in the operations of higher education institutions and the achievement of "sustainable development" or "sustainable success" in the higher education sector. Achieving sustainable development also implies achieving sustainable success of higher education institutions in a complex, demanding and changing environment. It is also extremely important to look at the legal regulations, that is, the harmonization of regulations and laws, and in particular it refers to the definition of norms and standards of the work of higher education institutions. In this article, we have analyzed the report of the state audit institution that refers to the control of the regularity of operations during the previous two years and the responses of the universities and faculties that were the subject of the audit to the auditor's recommendations, also the post-audit reports that refer to the recommendations that have not been corrected. The state audit report covers the control of four state universities, 27 faculties, 3 colleges and colleges of vocational studies, 7 academies of vocational studies and one academy of arts (Pejović, 2023). In the audit procedures, the primary purpose been the audits of the final accounts of higher education institutions, the audit of the regularity of operations and the audit of the expediency of operations, which are includes the examination of the economy of the administration, the efficiency and effectiveness of the use of public funds. The main intention of the paper is to present findings from audit reports with the aim of pointing out the key drivers of reforms in the management of higher education institutions in Serbia. The main challenges and obstacles in the implementation of the recommendations of the state audit institution are investigated. In this context, in the presentation of the audit of the state audit institution for the business of higher education institutions, among other things, the inadequate and incompletely established system of financial management and control and internal audit is highlighted, which results in identified errors and irregularities in the audit findings (Pejović, 2023). The number of irregularities determined during audit procedures in the area of financial management and control is in the total amount of 188, and by components 49 irregularities refer to the control environment and consist of non-existence or incomplete



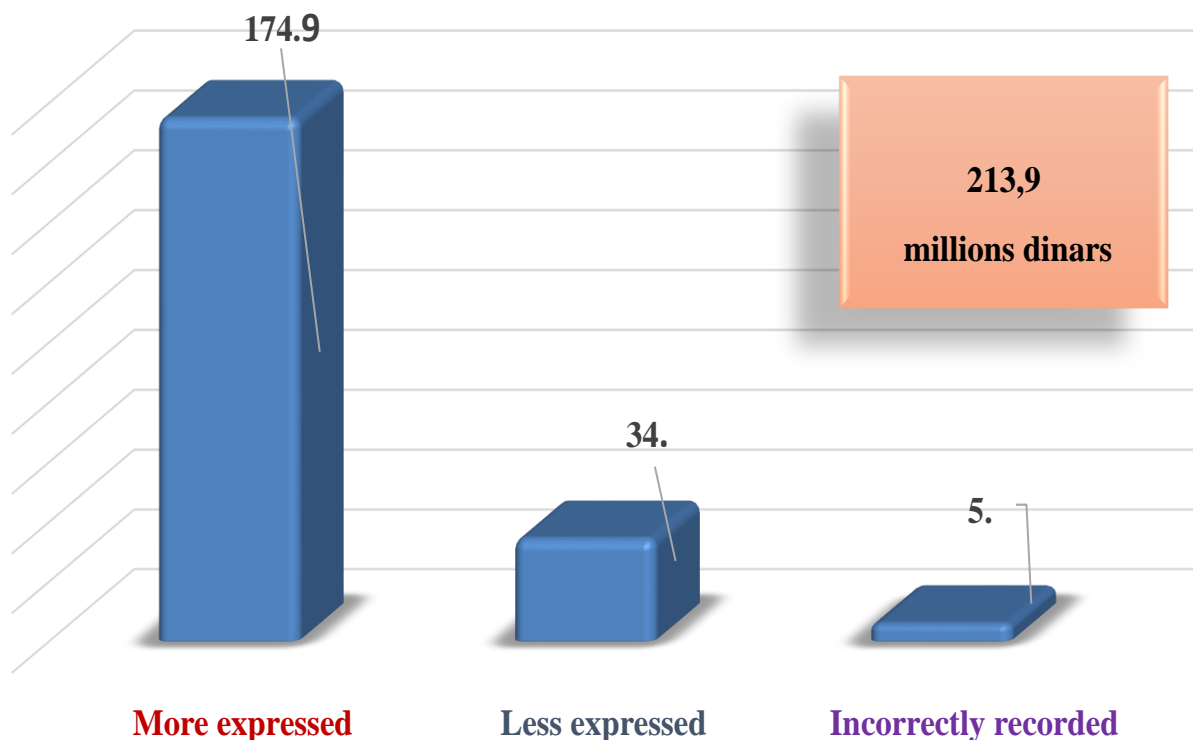
internal acts, 15 irregularities were identified in risk management, as many as 81 irregularities are in incomplete or inadequate control activities, in the area of information and communication, 37 irregularities and 6 irregularities in the area of monitoring and assessment in the subjects included in the audit (Pejović, 2023). Especially interesting from the perspective of auditing the regularity of operations are the errors in the reporting of expenditures and expenditures, which we can see from the following graph:



*Graph 1: Errors in reporting expenses and expenditures at higher education institutions in Serbia (in millions of dinars)  
(Source: (Pejović, 2023))*

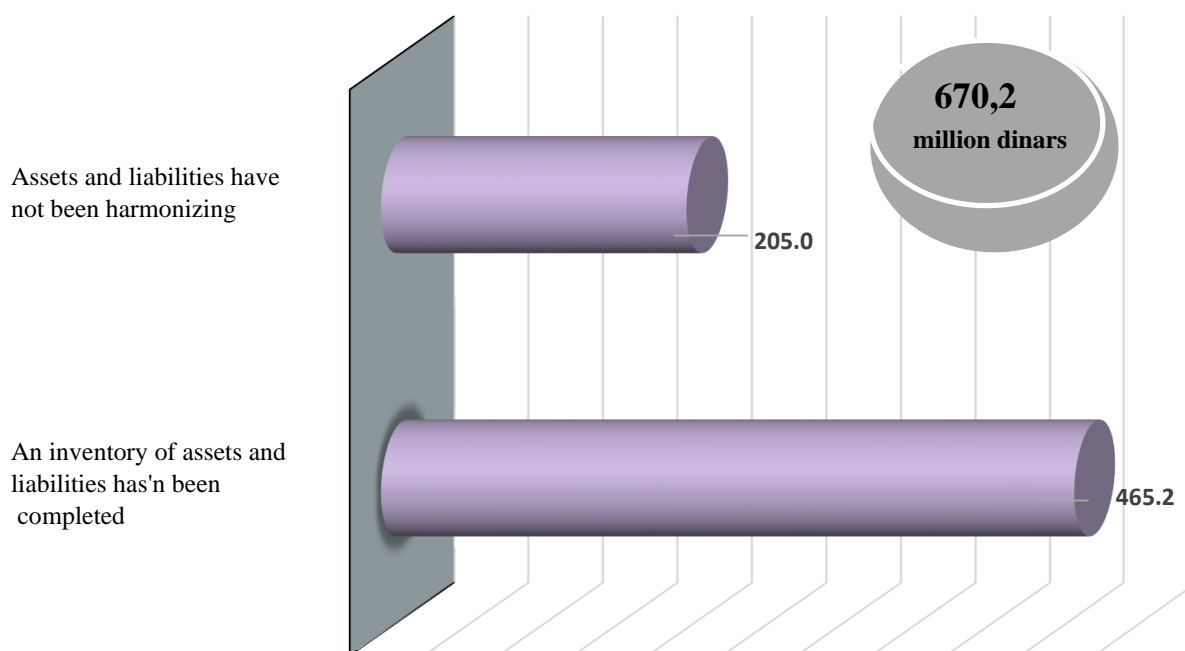
On the graph, we can see that the largest number of irregularities refers to errors in the application of incorrect economic classifications in the presentation of expenses and expenditures. This indicates irregularities both in the planning procedures, but also in the actual accounting reporting and execution of obligations and expenditures. Identified irregularities in this proportion indicate that control activities have not been established or have not been established to a sufficient extent. Monitoring and control in the verification phase of accounting documentation and in the payment phase is also highly debatable. Especially if we keep in mind that these are budget users, which the competent ministry controls on the basis of approved annual appropriations. In practice, these phases of the cost cycle are very important, also a electronic systems are able to easily collect and store the necessary data (Maksimović&Jerotijević, 2023). It means that the data that the graph illustrates are alarming in a certain way because the public institutions requires a clear policy related to the preparation of the budget and the formulation of a policy that ensures compliance of permanent obligations with budget planning, but also good administration because many obligations arise in practice from the routine activities or procedures rather than from formal contracts or created obligations.

In the following graph, we can see errors in determining business results.



*Graph 2: Errors in determining business results (in millions of dinars)*  
(Source: (Pejović, 2023))

At the 47 observed higher education institutions, the state audit institution found 174.9 million dinars in irregularities related to more reported business results, 34 million dinars underreported, and 5 million dinars were incorrectly recorded (Pejović, 2023). Proceeding from the premise that the main task of the audit is to express an opinion on the objectivity and truthfulness of the information provided by the financial reports, it must be raised a questions about the efficiency of management, as well as the trust of the management of higher education institutions and in the administration that prepares and submits the financial reports. Financial reports serve to realistically show the value of the institution's business, and since we are talking about budgets users whose business is of strategic public interest, also these reports are useful for planning further development or reducing negative impacts in the field of education. So, from the presented audit report we can conclude that new management mechanisms at higher education institutions are badly needed. As part of the preparatory actions for drawing up the final account, after all business changes have been posted, a closing sheet is drawn up in which the turnover of the debit and credit side should be in balance, as well as the reconciliation of the general ledger and the journal. In the findings of the audit, we have irregularities related to more stated business results, less stated results and improperly posted results (Pejović, 2023). Without going into individual irregularities, we can state in a general sense that there is no developed effective system of internal controls that include what needs to be done and procedures in which to implement what needs to be done. We can also state this from the audit findings related to errors in the preparatory actions for the preparation of financial statements, shown in the following graph.



*Graph 3: Errors in preparatory activities for the preparation of financial statements (in millions of dinars)  
(Source (Pejović, 2023))*

In its consolidated report, the State Audit Institution stated that the system of financial management and control and internal audit was inadequately and incompletely established, resulting in established errors and irregularities (Pejović, 2023). Taking into account the presented findings, the question of the efficiency of accounting systems on the one hand and the way of managing them on the other is justified. The accounting system within which these reports are created is a numerical analysis system that is compiled on a regular basis and has a public character, and as such is available to a wider range of users. By their essence, financial reports reflect the performance of institutions for a certain period, their financial-structural position and liquidity position on the balance sheet date. During the period, all business transactions are recorded in the accounting system, and at the end of the period, they are transferred to the financial statements. At the end of the accounting period, these reports maintain the success of the activities undertaken in the reporting period, the generated cash flows, the new state of assets, liabilities and capital, which represents the company's potential for the future period, on the basis of which the management, founders and other potential interest groups evaluate the likely performance in the future (Stevanović, et.al., 2009). Although accounting data in the education sector is not primary for decision-making and represents a supporting area, it is important, as in all other sectors, that the aforementioned inconsistencies are corrected, that educational institutions start with new management models that will contribute to the stabilization of their business. Higher education institutions in Serbia must strengthen their management capacities in order to ensure financial sustainability. In this context, there is a need for knowledge in the field of strategic planning, human resource management and effective implementation of financial management and control mechanisms.

#### 4. ANALYSIS AND DISCUSSION

Overall, Serbia spends a relatively modest share of its public resources on education compared to the EU average, but also to countries in the region. It is worrying that this percentage is decreasing from year to year. According to the latest available data in 2018, it spent 3.89 percent of GDP on education, compared to 4.64 percent in the EU (UNICEF, 2021).

One structural feature that significantly affects the financing model of higher education in Serbia is that universities are not organizationally or financially integrated and instead represent a loose community of faculties. From the financial side, this means that the "university" is represented only by the Rectorate of the university, while the faculties that make it up are independent legal entities that are financed directly from the national budget. The state provides budget funds primarily for salaries, contributions and other incomes of teaching and administrative staff at the faculties and in the Rectorate. Faculties that are part of a university and are financed directly from the national budget contribute to the financing of the Rectorate by transferring certain amounts of their own income in accordance with the agreement at the level of each institution. It were initiatives by the academic community in the past to create the conditions for greater financial centralization at the university level, but it never took off. When the Law on Higher Education from 2005 was adopted, a strategic decision was made to describe the competences of the university according to the model of "integrative function of the university" (Official Gazette of RS, 2005). Those functions included 15 areas: strategic planning, adoption of study programs, quality assurance and control, enrollment policy, selection for teaching positions, issuing diplomas and diploma supplements, international cooperation and mobility, investment planning, adoption of the code of professional ethics, protection of intellectual property rights properties, planning of employment policy and engagement of teachers and associates, formation and development of information system, education throughout life and career counseling of students (EACEA, 2017). At one point, it was predicted that the role of the university/rectorate would continuously increase and that budget funds would increasingly be directed to faculties through the university/rectorate. In the Law on Higher Education from 2005, there was a provision according to which the competent ministry should conclude a contract with the university on the basis of which the university would allocate budget funds to the faculties. That provision, however, was deleted by the 2017 amendments to the Law on Higher Education (UNICEF, 2022). The financing of higher education institutions should not be seen only as a mechanism for the distribution of financial resources, but it is an integral part of a wider range of public policy instruments that are used to achieve the maximum desired social results of all education with the use of limited public funds. Management and financing viewed from that point of view imposes on decision makers the question of how much autonomy and supervision higher education institutions need to meet social expectations on the one hand, and on the other hand imposes an obligation to regulate financing in terms of assuming responsibility for spending limited public funds. In our work, we look at audit reports in the context of efficiency in terms of the capacity of higher education institutions to achieve the goals of public policies in a cost-effective manner, where the emphasis is on accounting practices that were the subject of the audit. Based on the findings of the audit presented in the paper, we can conclude that in order to successfully implement reforms in the management of higher education institutions in Serbia and to have efficient and effective management, it is important to address the challenges and obstacles faced by the management of these institutions in order to better manage the reform process. Reforms certainly require political support, improvement of administrative capacities, but also regulation of normative frameworks and procedures. Analysis of the business of higher education institutions indicates that there is a significant need to improve management both in terms of compliance with legal regulations, as well as good management practices and compliance with the principles of efficiency and effectiveness, including achieving goals and reviewing the actual effects of activities in relation to the desired effects. With this article, the author wishes to emphasize that it is necessary to determine the norms and standards of work of higher education institutions in Serbia without delay, and that any delay and superficial monitoring of the situation in these institutions leads to further discrediting of the responsible in the system of preparation, adoption, execution and control of higher education funding.

The improvement of management in the work of higher education institutions will be able to be seen in the following period through the ways of implementation of recommendations by which audit subjects undertake corrective actions. Certainly, based on the findings alone, we can state with certainty that within the framework of overall reforms, accounting reform is also necessary, which represents a complex and challenging task that includes consideration of legislation, business processes, current accounting principles, practice, capacity, information systems and the professionalization of the accounting function (PULSAR, 2018). Following the report of the Ministry of Education, Science and Technological Development, the general conclusion is that a relatively stable level of funds for higher education has been reached in relation to other areas of the public sector, but also in comparison with the countries of the region (Perišić, 2023). The index of the increase in funds for university education in 2023 compared to 2002 is 11.32%, and the same index was 8.13% for the primary level and 8.49% for the secondary education level (Higher Education Union of Serbia, 2023). What characterizes institutions of higher education in Serbia is a large deviation in realized own income, so faculties mainly rely on public funds, however, due to deviations in achieved own income, the degree of dependence varies significantly among faculties. Technical faculties are to a greater extent oriented towards cooperation and partnership with private companies, which enables them to generate their own income by providing services on the market, so their own income is also higher. It is important to point out that the faculties have discretion in the use of their own income. Although the existing higher education funding model does not include incentives for performance or achievement of results, it is attractive to many in the sector due to its high degree of predictability and stability of income. Faculties have established unwritten policies and activities in order to maximize the institution's income, among which are increasing the relative share of self-financing students, increase in school fees and various administrative fees, and providing services for a fee to the public and private sectors (WB, 2022). What the author wants to highlight in this article, considering the existing funding model that gives faculties significant financial autonomy in terms of their own income, is the necessity of a way of thinking and increasing awareness of the importance of a new management approach, although it is understandable oppose of employees to changes if this would threaten the budget and salaries. The analysis of the human resources of the academic community, conducted by the World Bank in cooperation with UNICEF in Serbia, indicates the attractiveness of the current status in terms of the funding model, even among those who would agree that the current funding model not represent an incentive and reward the achievement of better faculty results or the individuals. (WB, 2022). However, we must agree that audit reports indicate the necessity of changes, even when it comes to regular accounting activities. If they were to consider the processes of improving strategic financial planning, which links financing with the goals of individual institutions or the sector as a whole, the results of the research would be even more alarming. Although program budgeting has been a legal obligation for over ten years, the reports of the competent ministry state that instead of improving program planning, a linear model prevails at all faculties, also that budget goals are not respected and that general costs are not allocated to the higher education program (Perišić, 2023). The basic trend in the countries of Western Europe is towards integral contractual financing of higher education. New financing lines are also available, most of which are still unknown to us (Varađanin, 2019). In addition, the austerity measures that were implemented in the previous years in the public sector of Serbia and which, among other things, led to the ban on employment, in the education sector hit the administration the most, forgetting that reform processes require capacity building and a change in the culture of the system (values, norms, skills, practices, relationships). Due to the consequences of an inadequate personnel policy in the administration of higher education institutions in Serbia, they have not reached the essence of the reforms, nor the changes in procedures and other formal attributes that the reform processes require.

For this reason, the levers of public policies in the education sector must clearly define strategies with the least resistance from employees and the greatest chances to positively influence the results of reforms (PULSAR, 2018). The results of the analyzes in the article show that the findings of the audit support the results of previous research in this area. Reform processes in the field of education require internal controls, performance orientation and management that recognizes the value of accounting information for efficient business on the one hand and on the other to confirm and justify the use of public funds.

## 5. CONCLUSION

Starting from the premise that investment in human resources is the most important factor that determines long-term economic and social development, it is essential to invest and control the management engaged in the field of higher education. Based on the audit reports on the operations of higher education institutions that were the subject of the audit, the State Audit Institution made a consolidated review of irregularities, based on which we can see the general statements about the challenges and obstacles faced by educational institutions in reform processes. Based on one segment from the audit report in this paper, we can conclude that the skills and knowledge of public accountants are essential for the success of reform processes and more efficient management in educational institutions to match of increased complexity in the public sector. In the context of more efficient management, it was also pointed out that the financing of higher education institutions is not only a mechanism for the distribution of financial resources to higher education institutions, but is an integral part of a wider range of public policy instruments that are used to achieve the maximum desired social results of higher education with the use of limited budget funds. Management and financing should not be viewed separately in the context of achieving social goals, precisely because an important aspect for arranging financing is the answer to the question of how much autonomy and supervision higher education institutions need to meet social expectations. In addition, the continuation of the implementation of European standards and guidelines for quality assurance of higher education institutions includes the improvement of the efficiency of internal mechanisms and the development of an effective system of internal financial controls, which, among other things, introduces a new approach to management through the definition of strategic goals in the performance of activities and the assessment of risks. Management reforms also imply a transition to program budgeting, which is considered the main driver or result of management reforms in the public sector. Finally, it is important to point out that effective public finance management systems require high-quality, professional financial staff. Without delay, it is necessary to draw the attention of public policy makers not to focus only on the formal side of the system, on norms or the introduction of new regulations. Internal technical drivers of reform processes, such as those embedded in laws and regulations, are not sufficient for effective public finance management reforms, nor for their completion, which requires political support and the support of key actors, who in the case of Serbia can often to oppose the reform. In this article, the emphasis is on accounting irregularities as one of factor of public finance management. It determines most of the content and classification of information processed in the public finance management process and affects the basic objectives, provides better information and management of resources, including revenues, expenditures, assets, debt and debt financing costs, liabilities and potential liabilities. It provides decision makers with more timely information for decision making, performance evaluation and accountability. In order to achieve a significant and realistic reform in the management processes of higher education institutions, a comprehensive understanding of the accounting environment is also necessary. Accounting experts know what is needed and have the skills to implement change in support of capacity building.

However, political support that defines the course of action is necessary, but it is the duty of the profession to use its voice to inform and help in accounting and budgeting reforms. Of course, the reports of the state audit institution are also important, especially their unified presentation of irregularities that can trigger the creation of strong drivers by implementing audit recommendations for implementing changes and actions that lead to results that can be further used to change behavior and achieving direct expected outcomes. In this context, the author of this work wants to emphasize that the specific benefits, goals and motives of the reform of accounting processes in the public sector can simultaneously be the drivers of management reforms in the public sector. Viewed in this way, audit reports provide a logical model of influence that, starting from identified problems, can trigger the creation of powerful drivers for implementing changes and actions that lead to results that can further be used to change behavior and achieve a measurable and sustainable impact on real operational and financial performance.

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## **MONEY LAUNDERING RISK FACTORS IN FOOTBALL – BENEFICIAL OWNERSHIP AS A REFEREE**

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### **ABSTRACT**

*In the last thirty years, football has transformed from the most popular sport into one of the largest entertainment industries in the world. Significant amounts of money, players whose objective value is difficult to determine, and weak regulation have attracted malicious actors intending to use the football sector to legalize their illegally acquired profits into the growing industry. Due diligence as a substantial instrument to identify concealed malicious actors trying to enter the sector is essential for the effective implementation of money laundering prevention measures. The article provides an overview of the risks associated with the ownership structure of entities in the football sector, a case study that proves detected risks in practice, and an analysis of the aforementioned risks. In conclusion, the authors propose various measures for risk mitigation and reducing risk to an acceptable level.*

**Keywords:** *Money Laundering, Beneficial Owner, Football, Risk Assessment*

### **1. INTRODUCTION**

According to Europol's report on organized crime involvement in sports, football is the most targeted sport by organized crime groups (Europol, 2021, 5). One may ask why organized crime groups choose football for their criminal activity. Football is the most popular (UNODC, 2022, 256) and largest sports industry (Breitbarth, Hovemann & Walzel, 2011, 2 consider football as part of the entertainment sector) and it is still growing (Plumley, Wilson & Shibli, 2017, 4). A lively market and little to no regulation concerning entering the industry makes the sector vulnerable to predicate offenses (i.e., match-fixing and illegal betting) and the laundering of illicit funds. One of the most significant anti-money laundering goals and focal point of anti-money laundering (hereinafter AML) legislation (Directive (EU) 2015/849, 2015) is detecting the beneficial owner, i.e., the natural person who ultimately controls the client or on whose behalf the transaction is conducted. The ownership structure significantly influences the way football clubs run - from the determination of goals (profit or result) through the transfer policy to other business processes (Plumley, Wilson & Shibli, 2017, 20). A key question concerning determining the risk of money laundering is related to who makes the final decisions, i.e., whether there is a single owner or a collegial governing body (e.g., assembly or management).

### **2. OWNERSHIP STRUCTURE AS A MONEY LAUNDERING RISK VARIABLE AND RISK FACTOR IN FOOTBALL**

The Financial Action Task Force (hereinafter FATF) divided the typologies of money laundering in football into seven categories: ownership of football clubs, the transfer market and ownership of players, betting activities, image rights, sponsorship, and advertising arrangements (FATF, 2009, 4). According to these typologies, the main variables and risk factors are the beneficial ownership of the clubs, i.e., the organizational structure of football clubs and a very active football market with plenty of transfers in a short time period (transfer window).

Various intermediaries (i.e., managers and agents) participate in transfers and receive a certain percentage of the amount paid for the transfer. In practice, this compensation often amounts to several million euros. As it is still quite an unregulated profession that provides high-risk services (consulting services) from the aspect of money laundering prevention (Cindori, 2010, 25), it is crucial to identify the beneficial owner of such intermediary agencies.

### **2.1. Ownership structures types of football clubs**

Football clubs have different types of ownership structures. Three of the most common types are the classical structure, the modern football corporation, and the citizens' association (Franck, 2010, 1). The essential characteristic of the classical ownership structure is the concentration of management and property rights in the hands of one person - the owner (as FC Chelsea Ltd., until 2022, owned by Russian-Ukrainian oligarch Roman Abramovich). The modern football corporation is organized as a joint-stock company with management rights concentrated among several collegial bodies that answer each other (Franck, 2010, 8-11) (i.e., Manchester United, founded in the Cayman Islands, with 90% of the shares held by the American Glazer family) (Investor FAQs). The third type is a non-profit association with its own legal personality, typical in Germany (eingetragener Verein). Spanish clubs had been mainly citizens' associations until 1992 when the government obliged them (except four clubs who fulfilled financial requirements) to become Sociedad Anónima Deportiva – a subtype of limited companies (Garcia-del-Barrio & Szymanski, 2009, 5-6). Citizens' associations operate according to the one-member-one-vote principle, and crucial strategic decisions are made at the membership meetings (Franck, 2010, 12, 13). As associations are non-profit organizations, members do not have any property rights. Additionally, since the right to vote in associations is not transferable, clubs with this type of ownership structure idealize the result before profit, however, with financial sustainability. All professional clubs from other old Big Five leagues (England, Spain, Italy, and France), except Germany, must be incorporated as limited companies or as public limited companies with slight differences regarding sporting concessions depending on the domestic legal system (Mudrinić, 2022, 31). Gammelsæter believes that hands-on leadership of rich saviors (Gammelsæter, 2010, 576-577), a.k.a. classical structure still prevails in European clubs today. In 1998, the German Bundesliga established a rule that football clubs could be constituted as trading companies (Keidel, C. and Engelhard, A., 2015). However, more than 50% of the voting rights must belong to the citizens' association - the founder of the trading company. Exceptions apply to Bayer Leverkusen and Wolfsburg which already existed as trading companies (as clubs of employees of the parent companies Bayer and Volkswagen), as the reason why the Bundesliga allowed them to remain in the same legal form. A few clubs circumvented this rule by separating voting and property rights. Thus, Lars Windhorst owns 66.6% of Hertha Berlin, while Martin Kind is the majority owner of Hannover 96, although both have left the majority of voting rights to citizens' associations (Kleen, 2022). Two peculiar cases are Hoffenheim and RB Leipzig (Kleen, 2022). Hoffenheim's owner, Dietmar Hopp, used the exceptions previously made for Bayer and Wolfsburg to take complete control over the club based on significant investments for twenty years. RB Leipzig limited the number of association members to twenty-one emphasizing that they are, in a particular manner, connected to Red Bull.

### **2.2. Elements of high money laundering risk related to the ownership structure of clubs**

Considering that football clubs are the personification of community identification and commonly act as multinational corporations, taking over the ownership of a football club that is not supervised by a competent authority creates numerous money laundering risks. The promise of a potential investor that he will lead the club to significant sporting successes in the short term or the fans' saturation with the current owner can cause a no-questions-asked

approach towards a new investor. Moreover, the complicated corporate structures that make up the brands of the biggest football clubs can be used to conceal persons who indeed run the club. Such passive participation in money laundering due to the absence of the source of funds identification or the identity of investors in favor of a higher goal (saving the football club or in the interest of results) is called "emotional laundering" (De Sanctis, 2014, 33). Furthermore, even the club owner with financial issues will not ask too many questions when a potential investor appears, saving him from further losses (Nelen, 2015, 292-303). If there is an absence of clear rules prescribing the due diligence of investors, such circumstances open the door for malicious actors to enter into the ownership structures of clubs. Thus, money launderers use very complicated corporate structures of their business entities in the money laundering process. The FATF identified the unavailability of beneficial ownership data as one of the biggest problems of the money laundering prevention system and issued list of indicators for their identification (FATF, 2018, Annex E). As a result of the Directive (EU) 2015/849 adoption, most EU countries fulfilled the obligation to establish a national register of ultimate beneficial owners (hereinafter UBO registers). However, access to most of them is charged or closed to the public, making it difficult for verification (only ten EU member states established UBO registers with open access and no charge for extract downloads). Based on the above, it can be concluded that football clubs per se are just brands that operate in various legal forms and different ownership structures in the background. Such complex corporate structures offer money launderers the opportunity to hide shell companies under the umbrella of a reputable brand. Some of the riskiest countries for the entry of suspicious capital, due to the headquarters of the wealthier football clubs, have introduced additional checks on potential investors as well. The 50%+1 rule applies in the first two German football leagues, while the English Premier League has its own fit and proper rules (i.e., the Owners' and Directors' Test as the requirements that must be met by owners and executive officers of clubs) (The Football Association Premier League Limited 2022, 141-154). Even though there were football officials who couldn't buy a club due to the fact that they failed the Owners' and Directors' Test, there were particular individuals who still managed to pass it despite their ineligibility (i.e., Thaksin Shinawatra who was convicted in Thailand, and Vladimir Antonov whose business was banned from trading in the UK by the UK financial regulator) leading to the conclusion that there is still a room for improvement (Medhi, 3-4).

### **3. CASES OF MONEY LAUNDERING BY ENTERING THE OWNERSHIP STRUCTURE**

Although money laundering through the football sector is still relatively unexplored, the main typologies can be spotted from the existing cases. Organized crime does not recognize the geographical borders of countries, and criminal groups often operate across borders (frequently transcontinental), which significantly tangles the investigation of perpetrators and their prosecution. This chapter describes four cases that did not necessarily lead to convictions for money laundering, although the competent investigative bodies undertook particular investigative actions due to suspicion of money laundering. Two of the analyzed cases refer to the direct ownership of football clubs, and the other two are related to controlling position and the concealment of the beneficial ownership of companies that serve as intermediaries in the football players' transfers.

#### **3.1. Colombia**

The first football club suspected of being financed by dirty money was Unión Magdalena, bought by the Dávila Armento brothers. In the late seventies of the twentieth century, they smuggled marijuana, although the Colombian judiciary never pressed charges against them.

The specific connection of the Latin American temperament, love for football, and the influence of drug cartels led to a phenomenon called *Narco-fútbol* (Krupp, 2010, 65) in Colombia in the eighties of the twentieth century. In 1983, Colombian Justice Minister Lara Bonilla informed the media that as many as six professional clubs were in the hands of drug traffickers: Atlético Nacional, Millonarios, Santa Fe, Deportivo Independiente Medellín, América and Deportivo Pereira (Ramsey, 2014). In 2015, the Colombian Attorney General started an investigation against eight clubs with an accusation of connection to drug smuggling cartels and money laundering (Lohmuller, 2015). Ticket sales, lucrative match broadcast contracts, transfers, player salaries, and betting were considered typical means to launder dirty cartel money, and entering the ownership structure of clubs provided drug cartel leaders access to all of these activities (Ramsey, 2014). The clubs fueled by drug dollars achieved notable results as well (Atlético Nacional managed to win the Copa Libertadores, and the Colombian football team whose players grew up on the playgrounds built by the drug cartels was declared by Pelé as the first favorite for the World Cup in 1994) however, the majority of the public was not interested in the origin of the money. América de Cali was on the US sanctions list until 2013 due to its ties to drug cartels, although the leaders of the Cali cartel - the club owners, were arrested or killed in the 1990s. On the same list was an American football club that served as a means of laundering money for Colombian cartels (Cindori & Manola, 2020, 886).

### **3.2. Argentine-Netherlands connection**

Football leaks (Chin-A-Fo, Logtenberg & Rengers, 2015) point to a complicated network of Argentine agents using Dutch trading companies to transfer South American footballers to European clubs. Given its good reputation for international money transfers and double taxation agreements with almost all countries, the Netherlands is an ideal stopover for global money flows, which South American managers have skillfully used during the transfers of South American footballers. Orel BV, one of the twelve companies that continually appear in the Football Leaks documents, is run by Martijn Odems, a prominent soccer agent licensed by the Dutch Football Association, and attorney Dennis Sickman. Sickman (as director) and Odems (as legal advisor) were employees of Duma Corporate Services (hereinafter Duma), whereby they directly or indirectly controlled at least twelve so-called "letterbox" companies. The common characteristics of all these companies are a business address in Amsterdam, compliance with all legal regulations, and regular submission of tax returns and annual financial statements. On the surface, each of these companies operates independently, frequently changing management and moving from one address to another in the province of Noord-Holland. All these companies are intertwined, and according to European Investigative Collaborations research (hereinafter EIC), Duma plays a key role in that network. It involved parallel flows of money through several jurisdictions whereby money from transfers moves to the secret bank accounts of football agents in tax havens to pay as little tax as possible. Funds for dozens of football player transfers from Argentina, Colombia, and other South American countries are paid by individuals from Amsterdam who often have no connection to the clubs or the players. However, they share the profits from various sources such as sponsorship contracts with companies like Nike, agency commissions, and investments in the football players' economic rights. Consequently, over several years, at least 30 million euros related to football ended up in the Caribbean. International transactions, which would otherwise be very unusual in the Netherlands, are modified in Amsterdam to make them look as ordinary as possible. Certain transfers were carried out exclusively on paper, including an invoice for services not provided, as one of the oldest money laundering methods. Money flows in Argentina similarly passed between the Duma and the controversial Argentine group Grupo Alhec, which simultaneously deals with investments, foreign exchange, and banking.

In 2013, Alhec's subsidiary in Panama was closed under suspicion of money laundering, while the Argentinian subsidiary is being investigated for the same criminal offense. After the 2013 raid, Alhec's operations were transferred to a Uruguayan trust-related service provider called BGL Asesores, and the *modus operandi* changed. Since 2013, all paperwork has been handled by BGL Asesores, and communication regarding football affairs flowing through Dutch companies moved to *hushmail*. All persons involved no longer use names but aliases, abbreviations, or numbers for identification. Most of the plans were still developed in Montevideo or Buenos Aires and performed in Amsterdam, even though millions of euros ended up in Panama or, since 2013, in the British Virgin Islands. James Rodríguez is a Colombian footballer who won the Golden Boot as the best scorer of the World Cup 2014 in Brazil. According to EIC, he is the best example of the Argentine-Dutch connection as a channel for millions of euros transferred via the Netherlands to Caribbean tax havens. In 2010, Rodríguez was transferred from Argentina's Banfield to Portugal's FC Porto. The intermediary in the transfer was Marcelo Simonian, one of the most important South American agents who uses Dutch "letterbox" companies for all dealings with European clubs. Available for the public, the transfer was not arranged by Simonian but by the Dutch company Orel BV. A year before the transfer, the director of Orel, Martijn Odems, signed a contract with the Panama company Braden Enterprises. At the time of the transfer, Braden switched the contract to another Panama company called Global Specialty Trading. In January 2014, Paros (a Panama company used as a treasury by the group) issued an invoice to Orel for over four million euros for "services" in the "Porto-Orel transaction" related to the "football player James Rodríguez" whereby the money went to Paros' account, i.e., its final destination (Buschmann & Wulzinger, 2017, 216). Although money laundering was not proven, it is indicative that high-risk methods often utilized by money launderers (complex ownership structures, use of trusts and off-shore zones, and intricate money flows) were used. Some participants were connected to the suspicion of money laundering.

### **3.3. Spain**

The subject of the investigation in Spain was the real estate of two prominent football agents due to suspicion of organizing fictitious transfers through a Cypriot club with the aim of money laundering and tax evasion (Mallene, 2020). According to Europol, the suspects tried to launder the illicit funds by buying real estate and yachts. Bought's property was registered under the corporate name whose owner was at the suggestion of a Maltese company engaged in tax consultancy, another legal entity (company). Thereby, the "corporate veil" was raised to hide the flow of money and the beneficial owners. The suspects are part of a criminal network that manages football clubs in several countries, including Belgium, Serbia, and Cyprus.

### **3.4. France**

Another example of a possible money laundering scheme was investigated by the French financial intelligence unit after notification of a suspicious transaction by an accountant. The subject of the investigation was an unnamed football club that operated in a persistent deficit (FATF, 2009, 17). At the same time, it gave the impression of a successful business due to frequent payments by one entrepreneur and companies in his ownership. It was established that the mentioned entrepreneur is the club owner, and transactions were carried out without compensation (in the form of goods or services) from the club (De Sanctis, 2014, 32). Due to performed transactions, the trading companies of the mentioned entrepreneur accumulated losses. Besides, the financial intelligence unit found irregularities in the accounting documents concerning the investments.

#### 4. ASSESSMENT OF RISKS RELATED TO THE OWNERSHIP STRUCTURE

Concealed beneficial ownership is a pressing problem in all industries, recognized by the European Union, FATF, Moneyval, etc., and addressed by all binding (directives, laws, etc.) and non-binding (guidelines, instructions, etc.) AML acts in the last ten years. In the second half of the twentieth century, penetrating the ownership structure of a local football club implied contact with local politicians, which could lead to lucrative deals with local government. These deals could serve as a method of money laundering to which clubs from lower leagues are most exposed. With the increased control of public procurement procedures, the risk of connection with the community is no longer as high as it used to be. Even though football is the largest growing sports industry in the world, the obligations of clubs are still higher than profits (Sušec, 2023, 10). Clubs living beyond their means is not a phenomenon endemic to football – the same pattern can be observed, although with lower amounts of money in the game, in handball, rugby (Gammelsæter, 2010, 569), and cricket (Wilson & Plumley, 2017, 142). The difficult financial situation of a football club provides the reason for selling at any price, performing as a simple vector for entering the sector for malicious actors. Consequently, such behavior will have negative consequences on the level of the entire risk of the football sector. Constitution of national registries of beneficial owners was supposed to facilitate the identification of beneficial owners for stakeholders in the AML system (obliged entities and competent authorities), however, many of these registries have restrictive access rights. Furthermore, football clubs operate in different legal forms (from non-profit organizations to groups with complex organizational structures), complicating the process of beneficial owners' identification. Determining the objective value of football players is nearly impossible, which makes it difficult to prescribe indicators that would signal suspicious transfers and lead to the danger of over-invoicing. As explained through the Argentine-Netherlands connection, third parties involved in transfers are not just intermediaries during the transfer. They are simultaneously tax and legal advisors, business representatives, and often surrogate parents of football players (in the case of international transfers of young talents). Third parties are regularly paid commissions and have a direct ownership share of football players' economic rights. It opens up the possibility of influencing the game and exploiting football for illegal activities such as match-fixing. A supplementary variable that makes this phenomenon so dangerous is the inconsistent application of agent licensing rules. Due to all of the above, the involvement of third parties in transfers is considered a high-risk activity. Given the globalization of football and simplifying the rules on the number of foreigners in the richest (European) clubs, cross-border transactions are an ordinary phenomenon. Due to the establishment of the Transfer Matching System and the FIFA Clearing House, an adequate system of control over transactions and risk volume was established. Although FIFA Clearing House was initially supposed to pay intermediary commissions, there is no such provision in the respective bylaw (FIFA, 2022),

<i>RISK</i>	<i>INHERENT RISK LEVEL</i>
<i>Connection with the community</i>	Medium
<i>Financial business of clubs</i>	High
<i>Disguised beneficial ownership</i>	High
<i>Determining the value of football players</i>	High
<i>Involvement of third parties</i>	High
<i>Cross-border transactions</i>	medium
<b><i>TOTAL RISK OF THE SECTOR</i></b>	<b>HIGH</b>

*Table 1: Analysis of the inherent degree of risk for the risks associated with beneficial ownership in the football sector (Sušec, 2023, 51)*

The aforementioned activities do not inevitably represent money laundering activity, however, they can be a sign of risky behaviors of particular individuals in the football sector. To establish the suspicion of money laundering, it is necessary to analyze them through their mutual relations. For example, the largest European clubs usually buy young talents from South America and Africa for enormous amounts. It looks like high-risk behavior due to an overpriced international transfer that commonly involves several countries. However, it should be considered that the success of one of the talents represents a return on all the invested money for the club from selling his jerseys, other marketing income, or even transferring him to another club. On the contrary, the same activity of a club from a second-tier European league with a small fan base and limited financial possibilities may raise doubts. Some authors point out that uncertainty of outcome in sporting competitions maximizes both spectators and revenues (Hogan, Massey & Massey, 2013, 427). For example, the Colombian Categoría Primera A league (livefutbol.com) is full of uncertainty, with six different champions in the last seven seasons. The same phenomenon can be seen in the golden era of Colombian cartels (1988-1993), where four different clubs won the title (the title was not awarded in 1989). Moreover, Plumley, Wilson & Shibli found that the performance of football clubs often runs in cycles with periods of good and bad results. Even leagues with four or more traditionally “big” clubs, such as the English Premier League, have micro eras lasting four to five years with only two or three actual title contenders each season. This results in most football leagues having two or three title holders per decade, including some exceptions (i.e., Leicester City in the Premier League) or “eternal” title holders (i.e., GNK Dinamo Zagreb in Croatia or FC Sheriff Tiraspol in Moldova), which effectively increases certainty and makes the final product (football games) less interesting to watch. Most popular clubs with strong fanbases will always be considered title contenders by their fans (even though that may not be realistic), which is a variable that should be regarded in the uncertainty-popularity correlation. In 2022, the hugest European football clubs tried to establish their own Super League, and the English Premier League (the most popular football league in the world) operates as a private company owned by clubs competing in it. Both cases show that precedents for privately owned football leagues already exist. Considering the above, it can be concluded that criminals can easily create their own tailor-made football league, with maximum uncertainty, to launder their illicit funds, which entails the mandatory implementation of anti-money laundering measures to determine beneficial ownership for league owners as well.

## 5. CONCLUSION

Tools to prevent the concealment of beneficial ownership already exist, though they have not been used sufficiently. Stricter FIFA licensing, constitution of a register of intermediaries, and intermediary commission payments through the FIFA Clearing House could reduce the risk of third-party involvement. As a rule, football clubs operate in legal forms that are obliged to be enrolled in the registers of beneficial owners in the European Union, however, there is no uniform approach globally. Given that the FATF recognized football as a high-risk sector in 2009, football clubs, as the central actors of the football sector, should be included as obliged entities. FIFA should, according to the principle of the Owners' and Directors' Test implemented by the English Premier League, oblige the national associations to control modifications in the ownership structures of the clubs under their jurisdiction. The main aim of that sort of control is to ensure registration of any modification of the ownership structure in the national association with related documentation that shows the identity of the natural person penetrating the ownership framework of the club (regardless of whether it exceeds the control threshold of 25% to be considered the beneficial owner or whether a legal entity is included in the ownership structure - information on the natural person who is the ultimate owner or who has a controlling share should be mandatory for registration).

The association, in cooperation with the national financial intelligence units as a control point for international cooperation on the prevention of money laundering, could verify the identity and source of funds of the new potential owner and then approve or deny the registration. That would make it significantly more difficult for money launderers to use the primary vector of abuse of the football sector for money laundering as entering the ownership structure and taking over the controlling position of football clubs. According to recent announcements from European legislative bodies (European Commission, Council, and European Parliament), the latest anti-money laundering legislative framework with “high-profile football clubs” listed as obliged entities should come into force in the near future (Struckmann, Michaelis, Glos & Schönewolf, 2023). Will this change the money laundering threat landscape in football remains to be seen.

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## REGULATION OF BRIBERY IN CROATIAN LEGAL SYSTEM

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### ABSTRACT

*Accepting (Passive) and Offering (Active) Bribery, together with Accepting and Offering Bribes in Bankruptcy Proceedings, Accepting Bribes in Business Operations and Offering Bribes in Business Operations, and Trading in Influence, individually, represent corrupt criminal offenses in the Croatian Criminal Code (further: CCC). Although corruption and bribery are often used as synonyms in everyday communication, corruption conceptually encompasses a wider range of criminal acts. In all cultures and societies, the very exposure of the word bribe in public opinion represents a contradiction in the context of legality and morality. The word bribe in its meaning defines a monetary or another reward that is secretly given to the one who can use his official position in favor of the one who offers the reward. The destructiveness of the bribe is reflected in all branches that are necessary for the existence and successful functioning of the state, such as economy, politics, culture, sports, education, etc., which leads to consequences that primarily undermine citizens' trust in laws and government, encourage social and individual inequality, slow down economic development and prevent the establishment of the affirmation of the constitutional equality of all citizens in front of the law. There is an especially need for equality, fairness, objectivity, and most important principle of legality. The paper analyses criminal offenses against official duty that represent corruption in the narrow sense (hard core corruption).*

**Keywords:** *Passive Bribery, Active Bribery, Criminal Code, Croatia*

### 1. INTRODUCTION

The Republic of Croatia to fight against corruption adopted many Acts like the Act on Office for Suppression of Corruption and Organised Crime, Act on Prevention of Conflict of Interest, Act on Responsibility of Legal Persons for Criminal Offences, Act on Prevention of Money Laundering, Act on Witness Protection, Act on the Right to Access to Information. Also, many Action Plans and Strategies are adopted to improve coordination and cooperation between many bodies in Croatia to realize anticorruption campaigns (Dragičević Prtenjača, 2009., p. 239). All these Acts and measures have the aim for easier discovery, proceedings, and punishment of perpetrators of criminal offenses of corruption. Corruption is necessary to distinguish from conflict of interests that doesn't need to present corruption. A person can commit Passive Bribery and not necessarily be in a position of conflict of interest. Also a person can be in a conflict of interest and not commit Passive Bribery. With criminal offenses against corruption, the state has the aim to protect and ensure efficient and legal work of official persons in the state, local administrative bodies, or legal persons with public authority.

## **2. ACCEPTING A BRIBE (PASSIVE BRIBERY)**

Accepting a Bribe as a criminal offense is one of the most significant corruption offenses related to an official or responsible person. This is a corruption criminal offense. The ratio legis (<https://www.enciklopedija.hr/natuknica.aspx?id=51933>) of incriminating this criminal offense is the protection of the duties and powers that an official or responsible person receives based on the law because impunity for a committed criminal offense provides an incentive for illegal behavior (lat. *Imputitas continuum affectum tribuit deinquendi*) (Božić, 2015., p. 104). The demand for a bribe must be in connection with an action that an official or responsible person commits or doesn't commit (Juras, 2019., p. 230). In this way, the value and confidence in the rule of law decrease, because it simultaneously contributes to the increase of inequality among citizens. The corruption of individual civil servants means, accordingly, the corruption of individual state institutions (Božić, 2015., p. 104). The Republic of Croatia must raise the awareness of society and every individual citizen about the harm and consequences of corruption, as well as about the need for prevention and sanctions. This criminal offense shows lower efficiency of official persons (Juras, 2019., p. 230). Punishment of Passive Bribery ensures efficient, legal, and conscious action in official offices and legal persons with public authorities. The possibility of this criminal offense is also in the case of discretionary evaluation when deciding about official duty. This criminal offense can encompass future actions, as far as those future actions are in the jurisdiction of an official or responsible person (Pavlović, 2015., p. 1242). Completion of this criminal offense is established when a contract about the reward is achieved. GRECO insisted that in CCC must be prescribed that gift or benefit can be used by a third person and not only for a perpetrator of Passive Bribery (Kralj; Dragičević Prtenjača, 2010., p. 734). Also, GRECO referred to cases of Active and Passive Bribery of all acts or omissions of an official person or responsible person within or outside the jurisdiction (Kralj; Dragičević Prtenjača, 734). Also in older CCC, part of the criminal offense provision of Passive Bribery, was justifiably deleted, and refers to confiscation of gift or other gain, because it represents also sui generis measure in CCC of confiscation of pecuniary gain, that the court will apply if the perpetrator was culpable (Kralj; Dragičević Prtenjača, 2010., p. 738). In this criminal offense, it is difficult to abstract the definition of a public official. In CCC, that definition is given in the General Part of CCC, but we can conclude that it refers to a person that acts in a public function including a public agency. So all actions in the public interest should encompass those actions. It must include all levels of government (local, state, or national).

## **3. OFFERING A BRIBE (ACTIVE BRIBERY)**

Criminal offenses that contain elements of corruption, to which the criminal offense of bribery belongs, represent basic obstacles to the establishment of top principles related to the creation of a legal state and the rule of law. This is why this criminal offense becomes the subject of numerous analyses, and the reason for this is the intensive normative activity of the International Community whose goal is to incriminate the most diverse forms of corruption, therefore the national community decided to place the fight against corruption among its priorities (Derenčinović, 2001., p. 252) both globally and regionally. In the case of Offering and Accepting Bribes, we are talking about necessary participation which the nature of the criminal offense requires, that is, it assumes the participation of several persons whose interests meet in the form of different roles so that in these corrupt criminal offenses we are talking about the so-called necessary parties to the crime (perpetrators of the criminal offense whose definition of a criminal offense (criminal being) assumes action of more persons) (Novoselec, 2016., p. 352). There is the possibility that a person refuses a bribe so the criminal offense of the necessary participation doesn't exist (Dragičević Prtenjača, 2009., p. 246).

In these situations, it is about necessary participation because one person is the perpetrator of the criminal offense of Accepting a Bribe (the person who receives the bribe), while the other person is the perpetrator of the criminal offense of Offering a Bribe (the person who gives the bribe) (Novoselec, 2016., p. 352). Offering exists if there is a person that is ready to provide bribe. Promising includes agreement and giving includes undue advantage transfer. The agreement isn't necessary at offering a bribe. It means that it isn't necessary for another person to accept the offer or gift (Cvitanović et al., 2018., p. 420).

#### 4. COMPARATIVE LAW

The ratio legis of the legislator is to try to ensure a non-corrupt administration, by criminalizing those behaviors that come from outside that administration as well. It is precisely for this reason that bribery is included in criminal offenses against official duty, even though it is not an official criminal offense (Derenčinović, 2001., p. 253). Literature in Croatia refers to different types of corruption. Derenčinović recognizes individual, indirect, systemic, and competitive (Derenčinović, 2001., p. 20; Dragičević Prtenjača, 2009., p. 234). Bačić recognizes political corruption, party-political, economic, state, bureaucratic, and corruption as connection with the current government (Bačić, 2000., p. 828-830; Dragičević Prtenjača, 2009., p. 235). The Republic of Croatia signed and ratified Criminal Law Convention on Corruption of the Council of Europe and its Protocols. Countries that are the least corrupt can be found in Europe (Denmark, Finland, Sweden, Norway,...) (Anti-Bribery and Corruption Laws in EU, <http://www.squirepattonboggs.com>) There are differences between continental and Anglo-Saxon law but also some similarities. If countries of Western Europe are the least corrupt, then, probably their legislation should be a role model for other countries. It is necessary to mention that OECD adopted Convention on Combating Bribery of Foreign Public Officials in International Business Transactions in 1997. The lack of this Convention is that it encompasses only Active Bribery. That's why the Convention of the Council of Europe covers more offenses like Active and Passive Bribery, Bribery in the Private Sector, and Trading in Influence (OECD, 2008., p. 13). All mentioned criminal offenses apply to natural and legal persons (OECD, 2008., p. 16). Anti-corruption laws is hard to enforce because of transnational crime. The necessity of applying legislation on perpetrators in the continental legal system is achieved by applying principles of territoriality, active and passive personality, and universal principles. Also, penalties are different in different legal systems so the perpetrator can't be sure which sanction will be applied to him. For example, in the USA fines for corporations are 2 mil dollars, and in the UK fine is unlimited, and prison is prescribed for up to 10 years (Goldstein, 1979., p. 364). In Croatia, the punishment for Bribery is a maximum of 10 years for a natural person. UK Ministry of Justice issued Guidance to prevent bribery actions. It's up to provide six principles that refer to Top-level commitment, Risk assessment, Proportionate procedures, Due diligence, Communication and Monitoring, and review (Anti-Bribery and Corruption Laws in EU, <http://www.squirepattonboggs.com>). In France, legislation about bribery encompasses the public and private sectors (Kralj; Dragičević Prtenjača, 2010., p. 752-759). In France is prescribed imprisonment of up to 15 years, and fines up to 5 mil euros. At the level of the EU, the main aim of the legislator is to guarantee the public interest (Moukiou, 2016., p. 72). Public authorities dealing with favoritism must be prevented. In these cases, if the EU prescribed its aims with Directives, it is usually up to the Member States to transpond EU provisions in accordance with national law so there is no possibility of uniformization (Moukiou, 2016., p. 73). Even though there are many sources in international law on how national legislator needs to harmonize their legislation, it is necessary to see if national law criminalize some behavior that international documents demand, or criminalize it in a narrow sense. Because of many provisions on an international and national level, it can be hard to obey those provisions for natural or legal persons that should obey these provisions (OECD, 2008., p. 14).

All criminal offenses that Conventions criminalize, criminalize if committed with intent. It can be difficult to prove intention because direct evidence like confession is rare. It is important that intent, in absence of direct evidence, must be analyzed from objective factual circumstances.

## **5. SPECIAL CIRCUMSTANCES OF BRIBERY**

Avoiding the direct incrimination of bribery and replacing it with a criminal offense representing the so-called delict of incitement was exposed to numerous well-founded and unfounded objections. The most basic one referred to the criminal law independence of Active Bribery because it is an accessory to Passive Bribery. According to GRECO, even though if an official person or responsible person isn't acting within its jurisdiction she fulfills also some other criminal offenses (exp. Fraud) or can be established its responsibility according to provisions of General Part of CCC (Kralj; Dragičević Prtenjača, 2010., p. 735). By legal nature, incitement as a form of participation is an accessory, therefore the attempt to incite was not punishable. The why we have the criminalization of Active Bribery as a criminal offense is the legal gap of the "accessory institute of incitement to the criminal offense of Accepting a Bribe" (Derenčinović, 2001., p. 253). Still, it is correct to conclude that the responsible person must accept a bribe for incitement as a criminal offense to be completed, because it was a "formal criminal offense that was considered completed by the act of incitement itself, and for which no consequences were required" (Derenčinović, 2001., p. 253). It was already punished due to the impartiality of the official person or responsible person in the performance of his/her duties, regardless of whether a violation occurred. When accepting and offering a bribe, it does not necessarily have to be an exchange, i.e., about giving and receiving objects, because the offense is already completed when the principle, that is, the basis of official responsibility and duty is violated. An official or responsible person at the time of accepting a benefit violates the principle of equality within the limits of his jurisdiction or exceeds the limits of his/her jurisdiction by giving priority to the initiator who promises a certain benefit. Perpetrators of the criminal offense of Passive Bribery within the meaning of the CCC can only be officials or responsible persons (According to the CCC, an official person is a state official or official, in a unit of local and regional government, holder of judicial duty, jury lay member, member of the State Judicial Council or the State Attorney's Council, arbitrator, notary public and professional worker who performs tasks in the field of social welfare, upbringing, and education. An official person is also a person who in the European Union, a foreign country, an international organization of which the Republic of Croatia is a member, an international court or arbitration, the jurisdiction of which is accepted by the Republic of Croatia, performs the duties entrusted to the persons from the previous sentence). CCC in Art. 87. defines a responsible person as a natural person who manages the affairs of a legal entity or is expressly or entrusted with the performance of affairs in the field of activity of a legal entity or state bodies or unit bodies of local and regional self-government (<https://www.zakon.hr/z/98/Kazneni-zakon>), which is why Passive Bribery is classified as a delictum proprium. If the perpetrator of Active Bribery promises an official or responsible person a gift or a reward, and the official or responsible person does not agree to it and submits a report, the perpetrator of Active Bribery will be liable even though the payment did not take place and the person to whom the offer referred did not agree to it. The promise to give a bribe would have to be taken seriously by the recipient of the bribe so that it could indicate his criminal liability. Namely, for both criminal offenses, it is significant that they were completed either at the time of the conclusion of an agreement, express or tacit, between the giver and recipient of the bribe or when the unilateral manifestation of the will of one of the parties in terms of demanding or promising a gift or some other benefit was completed. Under special circumstances, and in particular circumstances prescribed by law, the court can mitigate or remission the punishment.

This includes cases in which person reported the crime soon after it was committed, and before it was discovered, or before he found out that it had been discovered, if it was committed on demand of official or responsible person. We need to be aware that even without this provision in CCC there is possibility of applying provisions of judicial mitigation of sentence in case of special mitigating circumstances (Kralj; Dragičević Prtenjača, 2010., p. 741). In the case of the criminal offense of Active Bribery, all subsequent actions are irrelevant for the incrimination of the same, except in the case of sentencing, because the offense is completed at the moment of giving a gift or some other benefit, i.e. a promise to give a gift or some other benefit to an official or responsible person.

## **6. MEDIATION IN THE CRIMINAL OFFENSE OF ACTIVE BRIBERY**

The corrupt criminal offense of Active Bribery (According to the CCC, a bribe is any non-property reward, gift, or other material or non-material benefit regardless of value, Article 87, Official Gazette 144/12, 101/17, 118/18, 126/19, 84/19, available at <https://www.zakon.hr/z/98/Kazneni-zakon>). A bribe can include money, the promise of promotion, sooner hospital treatment beyond the official list, etc. The bribe can be offered to the perpetrator or some other person (Juras, 2019., p. 232). It's irrelevant if the perpetrator asked for a bribe or if a bribe was offered to him. Bribery can be committed directly, tacitly, or with concluded actions (Juras, 2019., p. 232). It can be committed by anyone (*delictum communium*) to an official or responsible person. Real Active Bribery consists of the offering, giving, or promising a bribe to an official or responsible person or mediation in such bribery to an official or responsible person (Novoselec, 2007., p. 380). The legal description of the criminal part of bribery is covered by the intentional form of culpability, therefore mediation in that part is punishable only if it was committed with intent. In the case of indirect intent, there is the possibility of referring to a mistake in which the mediator does not know that a certain thing handed over to him by the bribe-giver to finally reach the recipient of the bribe is, in fact, a reward that does not belong to him (Derenčinović, 2001., p. 238). An actual mistake, that is, a mistake about the nature of the act (*error in objecto*), excludes intent, and therefore the criminal offense of Bribery. Following on from the above, the criminal offense of bribery through mediation is committed when mediating in the corruption chain.

## **7. CONFLICT OF INTEREST AND CRIMINALLY RELEVANT CORRUPTION**

In contemporary constitutional democracies, the conflict of interest is at the very origin of the abuse of power by politicians and public officials to achieve private benefit (Bačić, 2012., p. 177). The criminal offense of bribery in its legal description states as the object of the action a gift or some other benefit, without specifying them, therefore it is necessary to use the standards of judicial practice of domestic and international courts and their comparison to determine the true content of these terms. A conflict of interest is a situation in which the private interest of the official person conflict with the fact that the public interest affects or may affect the performance of public duties and the impartiality of the official (Dragičević Prtenjača, 2009., p. 240) (<https://mpu.gov.hr/print.aspx?id=6174&url=print>). Conflict of interest doesn't mean corruption. Bribes, according to the CCC, are values in which the bribe-giver explicitly tries to obtain from the official or responsible person, the willingness to take action in his favor, but at the same time at the expense of the principles in the performance of official duties. Many different Conventions have a definition like undue pecuniary or another advantage, or undue advantage when describing bribe. Criminal law in other Member States of the European Union, as well as elsewhere in the world, contains provisions to combat active and passive corruption of national officials. Although the definitions of criminal offenses of corruption may differ from Member State to Member State, they have common elements that enable a common definition to be reached (<https://eur-lex.europa.eu/legal-content/HR/TXT/?uri=celex%3A51998XG1215>).

According to the actual legislation in Croatia, it is determined that an official in the public sector may not receive any gift or benefit for himself or another that affects or could affect the performance of his duties. Gifts of lesser value that represent small signs of attention are eliminated from the general prohibition (Derenčinović, 2001., p. 242). At Passive Bribery must exist corruptive intent (Dragičević Prtenjača, 2009., p. 250). This means that an official or responsible person must be ready to evaluate every situation of a possible potential conflict of interest. In case of doubt on the part of an official or a responsible person, the person is obliged to ask for advice in writing or contact superiors or authorities responsible for such treatment. Gifts of small value or small signs of attention such as invitations to lunch or drinks, calendars, pens, and agendas are not considered values that could affect the impartiality of officials, however, in situations of repeated gifts by the same person, their suitability for influence increases. According to the Law on Prevention of Conflicts of Interest in the Performance of Public Duties in Croatia (Official Gazette, 143/2021), officials may not, that is, they are prohibited from receiving gifts with a value higher than 66 euros from the same giver. The gift is money, or things no matter their value, rights, and services without a fee when the receiver is or can be in relation of dependency or create obligation towards a giver of a gift. On a comparative level, definition of gifts is different, so some states describe gifts up to some value that is allowed or forbidden (OECD, 2008., p. 36). For example, when analysing the conflict of interest, the EU in Directive 2014/24 in private law prescribes conflict of interests when someone finds him or herself trying to serve (or be loyal to) two or more people (or organizations) whose interests conflict with one another (Moukiou, 2016., p. 82).

## **8. UNCONCEIVED PAYING OF BRIBE**

The dark crime figure includes all those behaviors that are punishable by law and are not subjected to criminal repression by competent authorities. Derenčinović correctly mentioned that many proceedings against corruption don't come to an end because of the process of „filtration“ during criminal proceedings (Derenčinović, 2001., p. 230; Dragičević Prtenjača, 2009., p. 236). This means that the perpetrator was denied a measure of criminal prosecution, while the victims were not provided with adequate help and protection (Getoš Kalac; Pribisalić, 2020., p. 639). The specificity of these crimes lies in the lack of material traces because they are crimes committed in secret and not in front of witnesses, and the exchange or transaction itself takes place remotely, which represents a major problem when proving. On the other hand, most often the bribe giver is presented with contractual elements in exchange for cooperation with the criminal law authorities to discover the concrete criminal offense of corruption (Derenčinović, 2001., p. 246). The main critic is that perpetrator is not punished in exchange for an interest that is more predominant and leads to a kind of immunity to the bribe giver under certain legal assumptions or conditions. In conclusion to the above, the legislator offers the bribe-giver exemption from punishment in exchange for his testimony against the bribe-taker (Brnetić; Ljubej, 2015., p. 12). The legal prerequisites for the mandatory remission of punishment of the bribe giver can be prescribed alternatively and cumulatively. In CCC, a possibility of remission of punishment is prescribed when the crime was committed at the initiative of the bribe-taker, and the bribe-giver reported the crime promptly. The second possibility refers to a voluntary, but not timely, report to the competent authority, i.e. reporting when the crime has already been discovered or after the perpetrator has learned that it has been discovered (Derenčinović, 2001., p. 248). The bribe giver was forced to commit the act because of the danger that threatened his life, body, safety, and personal freedom when institutes of the General Part of CCC can be applied. The mere fact that the bribe-giver voluntarily reported the act should not indicate his de facto immunity. The obligation of timely reporting as an additional criterion implies the possibility of reporting the perpetrator just because of the knowledge that he has been discovered.



This ultimately leads to favoring one party in the corruption chain of exchange, which is not and does not always have to be less culpable. It is almost impossible to expect someone to report their criminal offense of giving a bribe and the criminal offense of accepting a bribe related to another addressee because this exposes them to possible criminal prosecution and criminal records. The problem that most often occurs with unconceived bribery refers to the possibility that all voluntary and timely assumptions are fulfilled, but the bribe giver reports the crime because he did not receive what was promised to him or received nothing in return, and the release of such a defendant is not consistent with certainty with the intention of the legislator.

## **9. THE RELATIONSHIP BETWEEN THE CRIMINAL OFFENSE OF ABUSE OF OFFICE AND OFFICIAL AUTHORITY AND PASSIVE BRIBERY**

The criminal offense of Abuse of Office and Official authority is covered by the legal description in Art. 291 of the CCC. An official or responsible person who takes advantage of his position or authority, exceeds the limits of his authority, or fails to perform his duty, thereby obtaining a benefit for himself or another person or causing damage to another, shall be punished by a prison sentence of six months to five years. It is a *delictum proprium*, because this act can only be committed by official or responsible persons. The basic form is contained in paragraph 1, in which the perpetrator achieves a benefit for himself or another or causes damage to another, while in paragraph 2, the punishment of imprisonment for the perpetrator is contained in the case of obtaining a substantial material benefit (Garačić, 2013., p. 573). It must be a matter of direct intent in which the perpetrator must act in a way to obtain property benefits for others or cause damage. There are different legal understandings of the relationship between the previously mentioned criminal offense and the criminal offense of Passive Bribery because there are similarities and differences between them. The criminal offense of Abuse of Office and Official Authority is completed when an official has performed some action with the intent and obtained some benefit for himself, and does not act by the duties of the office. It can only be carried out by the perpetrator at the place of work of official duties (Garačić, 2003., p. 7). In Croatian scientific literature can be found a proposal that the criminal offense of Abuse of Office and Official Authority should include only the official person and not the responsible person in legal person (For critic see: Kralj; Krstulović Dragičević, 2010., p. 751). In the case of the criminal offense of Passive Bribery, the offense is completed when the official receives a gift or the promise of a gift, regardless of the performance of the act that should have been performed as a counter service. The courts have decided that there is a concurrence between these two criminal offenses (*lat. Concursus plurium delictorum*). The existence of multiple criminal offenses by one perpetrator, for which, most often, they are tried at the same time. An ideal concurrence exists when the perpetrator commits several criminal offenses with one action. If they are committed at the same time crimes of the same type, there is a homogeneous ideal concurrence, and if various criminal offenses are committed, a heterogeneous ideal concurrence. A real concurrence exists when a perpetrator with multiple acts commits several criminal offenses for which he is tried at the same time. A real concurrence can also be homogeneous and heterogeneous (Horvatić, 2002., p. 553) if the unlawful property benefit was realized for some other person besides the perpetrator. Thus, the court states that "the defendant committed the criminal offense of Abuse of Office and Official Authority from Art. 337, paragraphs 3 and 1 of the „older“ CCC and Passive Bribery when it was established that as a police officer while controlling the vehicle and the driver, stopped an agricultural tractor and found that the driver was driving the tractor without the necessary documents and that the tractor was unregistered (thus the driver committed misdemeanors punishable under the Road Traffic Safety Act).

The police officer accepted the amount of 40 euros from the tractor driver as a reward for not reporting him for the offense committed, which at the same time enabled the tractor driver not to pay the fine for the misdemeanor in the total amount of 200 euro (County Court in Bjelovar Kž 37/01 of February 22, 2001). From this decision we can see that the court took as the reason for determining the existence of concurrence the fact that the perpetrator not only benefited for himself but also another because the tractor driver did not pay the misdemeanor fine. It is almost impossible to answer the question of whether there is always a concurrence of Abuse of Office and Official Authority and Passive Bribery, but also, this possibility should not be ruled out considering that both criminal acts are not mutually exclusive. In certain cases, when the abuse of position and authority is of greater intensity, there can be concurrence with the criminal offense of Passive Bribery (Dragičević Prtenjača, 2009., p. 252.). In other cases, the criminal offense of Abuse of Office and Official Authority would be covered by the criminal offense of Passive Bribery (Garačić, 2003., p. 9).

## 10. JURISPRUDENCE

In this chapter, we will show jurisprudence in comparative and national system. In 2012, the Supreme Court of the Federal Republic of Germany (Bundesgerichtshof, BGH) decided that rewarding doctors is not considered a bribe and that doctors do not commit the crime of bribery if they receive rewards from a drug factory for prescribing drugs from that factory list. In that proceeding, it was disputed whether doctors in private practice could be considered an official persons in cases where the drug factory paid a commission to the doctor for prescribing the drug in the amount of up to 5% of the sales price of the drug, in the sense of § 299 StGB which prescribes Active and Passive Bribery in commercial practice (Wienke, 2013, p. 21). The BGH considered that a doctor in private practice is neither an employee nor an executor of a public authority nor an official representative of an authorized health insurance company, and thus is not an official person either. A such reward cannot be evaluated exclusively in the categories of criminal law, but payments must also be evaluated from the point of view of valid regulations on professional and social rights, as well as competition rules and laws governing the advertising of medical products (Wienke, 2013, p. 22). The specificity of the position of health workers as persons who perform public activities outside the hospital system led in 2016 to the amendment of the German Criminal Code (§ 299a StGB Accepting Bribes in Healthcare Sector and § 299b StGB Offering Bribes in Healthcare Sector) by introducing this category of perpetrators as receivers and givers of bribes so that all doctors could be identified as possible perpetrators. The case of punishment for corruption between contract doctors of family medicine and the pharmaceutical factory Farnal (the Hippocrates Affair) attracted special attention in Croatia. In 2014, the Office for Suppression of Corruption and Organized Crime accused the pharmaceutical company Farnal and a total of 364 doctors of committing corrupt criminal acts of Active and Passive Bribery, Abuse of Office and Official Authority, incitement to Abuse of Office and Official Authority, as well as conspiracy to commit criminal offenses. The trading company Farnal, its chairman of the board, and 4 directors were accused of organizing and leading a continuous association of a large number of doctors and pharmacists in Croatia as recipients of bribes from Farnal from 2009 to 2012. They asked their employees to contact doctors and pharmacists on behalf of the Farnal company and offer and give them vouchers, money, pay for trips and professional training, equip surgeries, and other gifts worth five to ten percent of the value prescribed medicines as a counter service for prescribing and ordering medicines from their offer, at the expense of Farnal. Doctors were convicted by final judgments that, according to Art. 293, paragraph 2 of CCC/11, or according to Art. 347, paragraph 2, CCC/97, committed the criminal offense of Passive Bribery in such a way that, as responsible persons, they accepted a bribe to perform an official or other action within the limits of their authority that they would have had to perform anyway (namely, they would have had

to prescribe medicine to a sick patient, although in some cases it would be Farmal, while in another it could be a drug from another drug factory - Belupo, Krka, PharmaS, Lek Ljubljana, Alkaloid Skoplje, etc.). Most of the accused doctors in the negotiation process admitted to committing criminal acts and guilt in exchange for a lighter sentence and a promise that their work licenses would not be revoked (Božić, 2015, p. 103). About 60% of doctors were sentenced to prison (for a duration of three to eight months), which was replaced by community service, while the rest were given suspended sentences. Also, 90% of the convicted doctors had to pay a fine (most often in the amount of thirty daily incomes) as a secondary punishment, because Accepting a Bribe is a crime committed out of self-interest (Božić, 2015., p.133). It is necessary to mention that Supreme Court in Croatia (further SCC) in its decisions considers the position of the police officer in Passive Bribery as aggravating circumstance (Juras, 2019., p. 235) even though the police officer is also an official person. The question is if the position of the official person is taken two times when sentencing, because it is considered in the definition of Passive Bribery in CCC through special minimum and maximum of sentence for this criminal offense, and secondly as an aggravating circumstance when measuring punishment. The status of the police officer as the official person shouldn't be taken twice in sentencing because negative impact of the actions of the police officer is already considered through special minimum and maximum of the definition of the criminal offence of Passive Bribery when defining an official person. In another case, when the gift was given by other person through the defendant, than the defendant mediated in Active Bribery. It isn't relevant that the accused kept part of the gift for himself. Mediation for reward is an aggravating circumstance. (SCC, KŽ-454/69, Bačić; Pavlović, 2004., p. 1219). From the decision of the SCC, KŽ-1170/84 of June 19, 1985, the way how the defendant offered the policeman to spend the summer in his house on the island of K, while also exchanging their addresses, including the invitation to visit the house, along with the fact that the official report on the traffic accident was not even written, but everything else was on a note in the policeman's diary, are sufficient grounds for the proper conclusion of the court that the defendant committed the criminal offense of Active Bribery. At the same time, it is of no significance what the policeman thought about the defendant's offer, when it is obvious that this offer is related to the traffic accident and that it was followed precisely based on it, with a request for compensation for damages to which the defendant was not entitled (Garačić, 2009, p. 821).

## 11. CONCLUSION

Active and Passive Bribery is a form of corruption. Many different authors mention different types of corruption. With these criminal offenses, the functioning of official authorities and legal persons with public jurisdiction is questioned. No one in society should have the possibility to avoid legal regulations. It's up to the legislator to ensure the proper functioning of the legal system by stopping hidden activities and proper definition of a criminal offense in Criminal Codes. The need for ratification, transposition, implementation, and most important thing, enforcement of international norms presents difficulties in the fight against corruption in the EU. The main aim of the EU Commission is to confiscate the assets that must be a priority in the fight against corruption and organized crime, so from the EU level, there is a need for stronger control of criminal activities. Also, we should not forget that European Public Prosecutor has major jurisdiction in EU financial interests. In all these jurisdictions we must connect with sanctions and characteristics of sanctions that need to be effective, proportionate, and dissuasive criminal penalties (sanctions and measures). Definitely gravity of each offense must be criterion when prescribing and imposing sanctions.

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## DIGITAL PROJECT MANAGEMENT: THE CASE STUDY OF CROATIA

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### ABSTRACT

*The aim of this paper is to determine the importance and strength of the use of the project management model in Croatian companies. The research included companies in Croatia from different fields of activity in order to obtain a comprehensive study on the impact and acceptance of digital project management. The research is based on a questionnaire that was sent to the addresses of project team members. The results of the research and analysis confirmed a strong connection between the use of the digital project management model and the satisfaction of team members in Croatian companies. Likewise, the research results confirmed the great interest and motivation of project team members, which is a very solid foundation for the future development of this project management model. The research confirmed the assumption that more technologically developed companies are more inclined to the digital project management model than companies in the classic linear production model. The high motivation of project team members and a strong interest in further learning and advancement are the basis for building a competitive advantage of the companies they work in in the future.*

**Keywords:** digitalisation, digital project management, digital transformation

### 1. INTRODUCTION

The end of the twentieth century was marked by the peak of the development of global corporations, but also by the first major financial crisis. In the old industries, corporations divided the global market and looked for ways to further invest financial resources. The model of smaller projects, with the development of digital technology, has become one of the new managerial models (Grant 2016; Rothaermel 2019). The digitalization of production processes and the convergence of content distribution and broadcasting systems laid the foundations for the further development of digital project management. The convergence of content distribution and broadcasting on different digital platforms has enabled the sharing of content among all stakeholders of the process (Parker et.al. 2016; Moazed, Johnson 2016). Digital technology directly influenced the acceleration of processes and improvements in the value chain of companies that used the digital project management model (Lozić 2017). The benefits realized by corporations using digital project management far exceeded the costs that were caused by the introduction of new management models. Project management costs were almost reduced to fixed operating costs (Rifkin 2015; Lozić 2019). The use of the digital project management model is directly related to the processes of digital business transformation. In the paper, research was done on the level of knowledge of the digital project management model in Croatian companies, and how satisfied and motivated the employees of the project teams are in their daily business tasks.

## **2. DIGITAL TRANSFORMATION**

Digital transformation is defined as "a process that aims to improve an entity by initiating significant changes in its properties through a combination of information, computer, communication and connection technologies" (Vial 2019). Digital transformation is always based on managerial strategies that guide the development of business activities, and it is very often the result of disruptive innovations in already existing industries (Lozić 2020). Defining a digital strategy effectively manages opportunities and risks in preparing companies for digital disruption of the industry (Rausser 2016). In the analysis of the digital transformation of the organization, it is necessary to distinguish the processes of digitization, digitization and digital transformation. Digitization is the process of converting analogy data into digitized records (Benahmed, Hansal 2022). The digital transformation of the organization is aimed at lowering business costs, i.e. increasing the organization's income. Cost management is aimed at digital process optimization, which is the basis of the next digital transformation of the organization (Lozić, Fotova Čiković 2021). Digital transformation is the integration of digital technology into the business functions of an organization. It uses the accuracy, accountability and precision of digital technology to improve business systems and drive efficiency and operational agility across the organization. A successful digital transformation strategy is an important characteristic and helps foster a synergistic environment that focuses on successful outcomes and projects, efficient business processes, and seamless interaction among team members. Digitization implies the impact of digital technologies on existing business activities, while digital transformation directly affects the construction of new business processes and the creation of value in a completely new way (Verhoef 2021). Digital transformation enables by cloud-based applications and supported by emerging technologies will become the central nervous system of the intelligent enterprise of the twenty-first century (Maheshwari 2019). Digital transformation is about revolutionizing the way business is done by developing a digital culture and future-proofing your organization for continuously changing internal factors, external competitors, industry trends and new technologies (Gilchrist 2018).

## **3. DIGITAL PROJECT MANAGEMENT**

Cleland and Ireland (2002) define a project as a specific set of processes designed to produce a pre-defined item or set of items, output or results within time constraints, budget and quality standards. Similarly, Gray and Larson (2020) suggest that projects are characterized by their uniqueness, complexity, and need for coordination among multiple stakeholders. Understanding what a project is is critical for individuals and organizations to adopt effective project management practices and ensure successful project outcomes. The project is an almost ideal organizational framework for achieving the strategic goals of the organization. It is carried out by people, the amount of resources is limited and it is based on a plan (has a goal and purpose), execution (implementation) and control. Every project created is unique and unrepeatable (Buble 2010). Project management is application of knowledge, skills, tools and techniques to project activities to meet the project requirements (Wysocki 2021). A project is a unique set of activities designed to achieve a specific goal within a defined time frame and budget. According to the Project Management Institute (PMI 2023), projects are temporary efforts to create value through unique products, services, and processes (PMI 2023). The project management literature often emphasizes the importance of understanding the nature of projects to achieve successful project outcomes. Project management is used by all types of organizations, regardless of whether they were created before or after digital transformation. Netflix started its business as a project to rent movies in physical form to transform into a streaming platform. Unlike Netflix, Spotify immediately started operations as a digital platform (Lozić 2020). Projects are usually initiated to bring about change, while processes are designed to ensure consistency in the implementation of activities to achieve defined goals.

Effective project and process management is necessary for organizations to achieve desired outcomes. Projects and processes are important components of modern business practice and complement each other in achieving organizational goals, but they should not be used as synonyms. Also, program is one of the words used as a synonym. A program implies planned and organized work undertaken to achieve long-term goals and often consists of several related projects that have a common goal, strategies for achieving them, rules and values (Lamza-Maronić et.al. 2009). Project management represents an area within organizational theory and practice that is constantly developing (Vlahov 2013). The concept of project management represents a systematic approach to efficient management through the optimization of connections, information, decisions, documentation and activities in all phases of the project life cycle (Vlahov 2013). Project management can be defined as the actual, ongoing process of creating, organizing, and executing a plan to meet specific goals. However, project management is much more extensive in practice. The ability to deliver projects on schedule and on budget and in line with business objectives is critical to achieving an advantage in today's highly competitive global business environment (SPI 2019). Project management is the use of specific knowledge, skills, tools and techniques to deliver something of value to people. Developing software for an improved business process, building a building, helping after a natural disaster, expanding sales to a new geographic market - these are all examples of projects (PMI 2023). The beginnings of project management are recognized in the use of the Gantt chart. A Gantt chart is a diagram that graphically displays operations in a given time frame (Lozić 2012). Project management creates and enables happy, motivated teams who know their work is important, so they do their best work, and that project management-enabled team ensures the delivery of projects that deliver a real return on investment and keep clients happy (Aston 2023).

### **3.1. Agile methodology**

Traditional project management practices ARE often associated with a waterfall approach. However, agile methodologies such as Scrum and Kanban prioritize flexibility, collaboration and iterative delivery. By breaking projects into smaller increments, agile methodology enables teams to respond quickly to changing requirements and customer feedback, leading to more efficient project outcomes. It is a modern methodology. They started to be implemented with the increase of companies related to IT, which the traditional system did not suit (Deželić 2020). Agile project management methodology is about the ability to build and act on change. It is a way of solving and ultimately succeeding in an unpredictable environment. (Caldwell 2021). Agile therefore represents adaptability and response to changes. It's about teams understanding what's going on in the environment, identifying what uncertainty they're facing, and figuring out how they can adapt during the project. Simply put, the word agile refers to an iterative approach to software development and project management that depends on continuous planning, learning, development, teamwork, evolutionary improvement, and early delivery. Its ultimate goal is to encourage a flexible response to change (Goff 2023). Agile project management is an iterative approach to planning and managing project processes. It breaks project processes into smaller cycles called "sprints" or "iterations". Agile project management enables software development project teams to work quickly and collaboratively on a project with the ability to adapt to changing development requirements. It also allows development teams to respond quickly to feedback, so they can make changes with each iteration and production cycle. Agile project management methodology divides projects into small pieces, i.e. the already mentioned iterations or sprints. Given the shift in work to agile teams, members must be trained to work in teams. They must be able to communicate well to keep projects on track and should feel comfortable taking the appropriate actions at the right time to keep up with the delivery schedule (Gillis 2023).

### **3.2. Waterfall methodology**

The waterfall methodology, also known as the waterfall model, is a sequential development process that flows like a waterfall through all phases of a project (analysis, design, development, and testing), with each phase completely completed before the next phase begins (Webb 2015). The waterfall or predicative method is the traditional way to manage project for lead parts several decades. The waterfall is very straightforward in its concepts, as the project task are carried out in strict sequential order (Malakar 2021). The success of the waterfall method depends on the quantity and quality of work done on the interface, documenting everything up front, including the user interface, user stories, and all feature variations and outcomes. Since most of the research is done in advance, estimates of the time required for each request are more accurate, and this can provide a more predictable release date. This methodology follows a chronological process and works based on fixed dates, requirements and outcomes. Based on this management, the teams do not have to be in constant communication with each other. In contrast to the agile approach, teams tend to work independently, which means that team members do not have the obligation to report frequently on the status of progress and completed tasks. Also, one phase of the project does not start until the previous one is completely finished, while with the agile approach, several phases of the project are done simultaneously. The issue with this methodology is that if the project has a big scope, it might take many months if not years until we get final results (Bibik 2018).

### **3.3. Kanban methodology**

The Japanese word "kanban", meaning a visual board or sign, has been used to define a process since the 1950s. It was first developed and applied by Toyota as a just-in-time production control system. On the other hand, the term "Kanban" is known and associated with the appearance of the Kanban method, which was first defined in 2007 (Kanbanize 2023). Kanban methodology is a very important philosophy that plays an important role in many production units. The main goal of the Kanban system is to maximize the productivity of the unit, and this is achieved by reducing the idle time of the process. The Kanban system is a very cost-effective process if applied properly (Wakode et.al. 2015). Kanban is one of the methods of managing the projects, it mainly focuses on how the project will deliver without overloading the workin team (Rasch 2014). It is a method of managing and monitoring the production process. The procedure is based solely on the actual consumption of the material at the point of consumption. Kanban makes it possible to reduce inventory in production and keep it as low as possible. This methodology was developed during the fifties of the last century at Toyota. One of the reasons for this was the insufficient productivity of the company at that time compared to American competitors. This business philosophy is most responsible for the business boom of Japanese industry. A few decades later, Kanban spread around the world (Deželić 2020). He moved from manufacturing to agile software development, and later to different industries. The Kanban method appeared in 2007, applied to IT, software development, research and development, etc. Kanban methodology is a workflow management method that helps organizations visualize their work, improve efficiency, and manage and monitor the flow of tasks or work items. It is often used in agile software development, but can be applied to different industries and projects. Kanban is about visualisation of the process, so the expression „a picture is a worth a thousand words“ really describes the Kanban process very accurately (Bibik 2018). The secret of the Kanban method lies in its visually and continuous monitoring of work flow and task progress. The fact that by simply looking at the board you can know exactly what stage the project you are working on is in and what is still left to do gives a sense of security and control, relieves unnecessary stress and directs focus to what is important (Limes 2022).



### **3.4. Scrum methodology**

Scrum is a project management framework that emphasizes teamwork, accountability, and iterative progress toward a well-defined goal. The framework begins with the simple premise "Start with what can be seen or known". After that, monitor the progress and adjust if necessary. Scrum is often part of agile software development. It got its name from the rugby formation in which everyone plays a role (Lutkevich 2021). Scrum is a simple incredibly set of principles and practices that help teams deliver products in short cycles, enabling fast feedback continual improvements, and rapid adaptation to change (Malakar 2021). Scrum is an agile development methodology used in software development based on iterative and incremental processes. Scrum is a customizable, fast, flexible and efficient agile framework designed to deliver value to the customer during project development. The Scrum methodology is mainly used for software development, but other sectors also take advantage of this methodology by applying it to their organizational models such as sales, marketing and human resources teams (Bhaskar 2023). In Scrum, the team focuses on building quality software. The owner of the Scrum project focuses on defining the characteristics that the product must build, i.e. what to build, what not to build and in what order and to overcome any obstacle that could hinder the development team's task. The Scrum Team consists of three main roles: the Product Owner, the Scrum Master, and the Development Team. The Product Owner serves as a liaison between the development team and its customers. The Product Owner is responsible for ensuring that expectations for the finished product are communicated and agreed upon (Lutkevich 2021). It is important that the product owner and the Scrum master are not the same person. In addition, it is important that the Product Owner does not manage the team or assign new tasks during the Sprint (Spica 2022). A Scrum Master is a professional who leads a team that uses agile project management during a project. The role of the Scrum Master is to use agile project management to advocate for the project, teams and team members. A Scrum Master's tasks often vary from day to day, but most often include leading daily meetings, reviews, demos and other project-related meetings, supporting team members in their tasks, teaching the team about Scrum principles and best practices, facilitating open discussion and conflict resolution, proactively identifying and resolving issues, updating activities in a project management tracking tool (Coursera 2023). Measuring Scrum effectiveness is the responsibility of the Scrum Master, who will identify key Scrum metrics for measuring individual components of the workflow, as well as the process as a whole. these can be, for example, the success of the sprint goals, the speed of the team, the time required to bring the product to market, the return on investment (ROI). The Scrum Master will refer back to these goals to continually refine and improve the process (Wrike 2023).

### **3.5. Hybrid methodology**

Hybrid project management methodologies by definition represent a combination of project management methodologies, which the organizational unit adopts and adapts to its contextual needs (Kuhrmann et.al. 2017). Hybrid methodology is a blend of predictive and adaptive approaches to deliver value, determine by product, project and organisation variables (Dionisio 2023). Agile methodologies are mainly intended for software, i.e. digital companies, while other companies most often use hybrid methodologies. Hybrid methodologies combine two different methodologies in order to balance the advantages of one and eliminate the disadvantages of the other, eg take the benefits of agile and eliminate those of traditional ones. Likewise, hybrid methodologies are more attuned to the problem itself to create and deliver maximum value. As such, they are highly compatible for many projects across various industries with the goal of increasing flexibility and speed (Torner 2023). It combines the best of agile and the work breakdown structure to create a new project management method that fits most projects.

The biggest advantage of the hybrid project management method is that it allows the team to plan before starting work on the project, but also divides the development cycle into short-term deliverables called sprints. Hybrid can handle changing requirements and due to its iterative nature can deliver products in stages. As soon as the product reaches minimum viable product, it can be shipped and the development team can continue with future improvements (Robins 2017).

#### **4. METHODOLOGY AND RESEARCH QUESTIONS**

The research used the method of questionnaires sent by e-mail to the addresses of companies and individuals that are part of or connected to digital project management. The primary method of data collection consisted of three sets of questions that were directed towards research and answers to three research questions:

- 1) RQ1 - How familiar are team members with the management model based on digital projects and which models are used in the company?
- 2) RQ2 - In what type of industry is the digital project management model most often used and how much is it accepted by the employees of the companies that use it?
- 3) RQ3 - What are the problems and challenges in using the digital project management model and how satisfied are the employees with this type of management?

The collected data were processed using statistical methods in order to make them comparable and to be the basis for new research in this area. The research results are presented in the Data analysis chapter, and the final considerations in the Conclusion chapter.

#### **5. DATA ANALYSIS**

The research on the familiarity of the employees of Croatian companies with digital transformation, i.e. the management of digital projects with the purpose of achieving a competitive advantage in the industry, was conducted in the first half of 2023. The results are based on primary research results collected from questionnaires sent to the addresses of employees associated with digital project management. About 200 questionnaires were sent for research purposes, while 125 questionnaires were returned, which is enough for the results of the research to be significant. Questionnaires were sent to the addresses of project team leaders, as well as team employees, and the answers give a complete picture of the interests and familiarity of employees. The results of the structure of the respondents are shown in table 1. According to the structure of respondents, 63.2% of men and 36% of women participated in the survey, and 0.8% were undecided. The number of men and women who actively participated in the survey does not answer the question of whether men are more represented in digital project management, nor whether they are more numerous as members of project teams. According to the age group, the research is divided into five basic groups, the first of which is adapted to the group of students, who work in the "part-time-job" model, and the other groups are divided into frequencies of ten years. The majority of respondents are in the age group of 25 to 34 years, that is, more than 40%. More than 70% of respondents belong to the first two groups, i.e. "digital natives" dominate in digital project management teams.

*Table following on the next page*

*Table 1: Structure of responders*

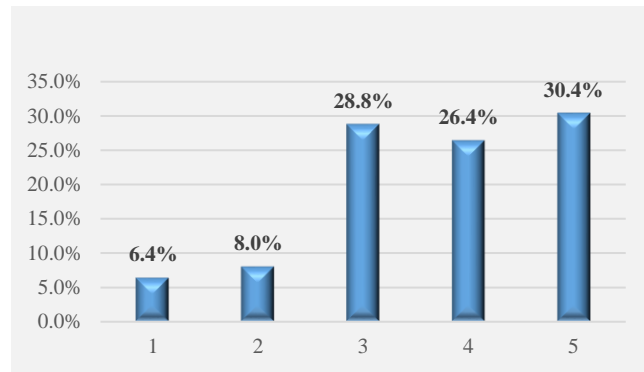
<b>Gender</b>		
<b>Men</b>	79	63,2%
<b>Women</b>	44	36,0%
<b>The rest</b>	2	0,8%
<b>Total</b>	125	100,0%
<b>Age group</b>		
<b>18-24</b>	37	29,6%
<b>25-34</b>	51	40,8%
<b>35-44</b>	25	20,0%
<b>45-54</b>	10	8,0%
<b>55-64</b>	2	1,6%
	125	100,0%
<b>Education level</b>		
<b>Undergraduate</b>	57	45,6%
<b>Master</b>	41	32,8%
<b>High school</b>	20	16,0%
<b>PhD.</b>	7	5,6%
<b>Total</b>	125	100,0%
<b>Employment model</b>		
<b>Employed</b>	73	58,4%
<b>Entreperneur</b>	28	22,4%
<b>Student</b>	23	18,4%
<b>Retired</b>	1	0,8%
<b>Total</b>	125	100,0%

*Source: Koščak, Master Thesis, 2023.*

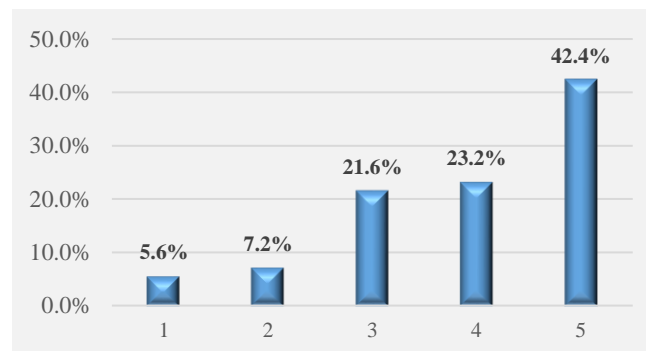
The largest number of project team members have an undergraduate education, or 45.6%, and with part of the members having a Master's level education, or 32.8% of the members, they make up more than three quarters of the employees. There are 7% of team members with a PhD level of education, while 20% of members have a high school level of education. Employees in companies make up 58.4%, with entrepreneurs making up 22.4% of the respondents, making up more than 88% of the respondents who answered the questionnaire.

### **5.1. Digital project management models**

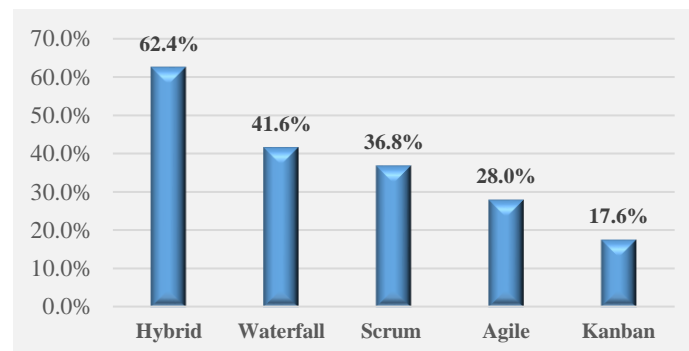
The research in the context of the first research question was moderated towards the analysis of employees' familiarity with project management models in the company and the research which project management models are most often used in Croatian companies. The survey consisted of three basic questions, the first two of which were answered in a Likert rating scale model from 1 to 5, and in the third question, employees were given the option of choosing a maximum of three out of five possible answers. In the first research question, respondents confirmed the significant use of the digital project management model in Croatian companies. The highest score, or 30.4% of respondents, answered that project management is very often used in Croatian companies. The lowest ratings, i.e. ratings 1 and 2, are 6.4% and 8%, which confirms the very high tendency to use digital project management in Croatian companies. The results of the analysis are shown in Figure 1.



*Picture 1: How often does your company carry out digitally managed projects?*  
*Source: Koščak, Master Thesis, 2023.*



*Picture 2: Evaluate the importance of digital project management for the success of your company*  
*Source: Koščak, M., Master Thesis, 2023.*



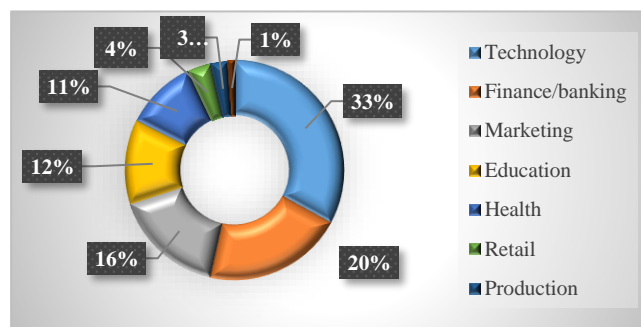
*Picture 3: What digital project management methods are used in your company?*  
*Source: Koščak, Master Thesis, 2023.*

The research results shown in Figure 1 prove the significant role of digital management in project management, while the research results shown in Figure 2 highlight the respondents' significant support for the digital management model in projects. The highest rating, or 42.4% of respondents, believes that the use of digital management is very important for the success of the company. Only 5.6% of respondents do not consider digital project management to be an important factor in building a company's competitive advantage. The third research question, in the first group of questions, referred to the digital project management model used in the company. Respondents could choose multiple answers (no more than three) due to the use of different models in the past time period.

The most frequently used model is the Hybrid model, i.e. 62.4% of respondents participated at least once in digital project management that used the Hybrid model. The results of the research are presented in table 4.

## 5.2. Digital project management models and acceptance in the company

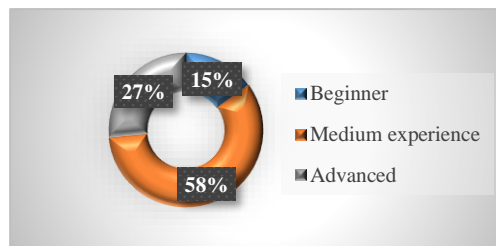
In the second set of questions, an effort was made to find answers to the question of what types of industries the interviewees work in and how familiar they are, and how strongly they accept this type of management. Koulopoulos and Keldsen (2014) emphasize that: The holy grail, of course, marrying highly useful technologies with highly usable technology, creating novel users experience that invite people who previously had not seen a reason to participate. The largest number of respondents were employed in activities that require knowledge of high technologies, that is, 33% of respondents worked in companies that belong to the domain of high technologies. The second largest group is employees in finance and banking, 20%, followed by marketing, education, healthcare, retail and classic manufacturing activities.



Picture 4: What type of industry are you employed in?

Source: Koščak, Master Thesis, 2023.

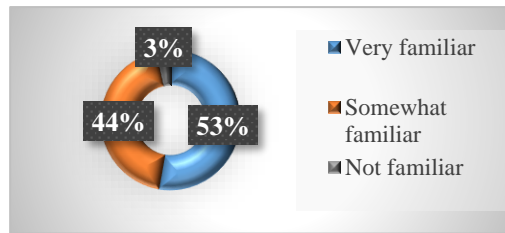
The distribution of results is expected because high technologies, banking and finance, as well as marketing and education are very flexible activities that quickly adapt to new ways of management. In Croatia, healthcare is somewhat worse represented, that is, only 11% of respondents were represented in this sector. For the classic linear production sector, the result is expected because the production capacities are already installed, and the scaling of production is almost impossible in old industries. The results of the research are shown in Figure 4.



Picture 5: Experience level

Source: Koščak, Master Thesis, 2023.

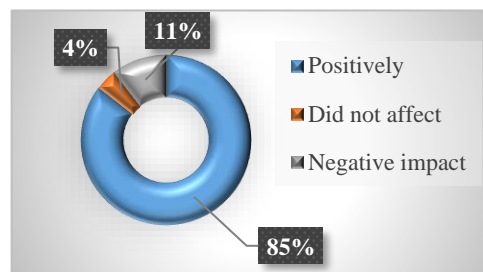
The results of the research in the context of the experience of the members of digital project teams confirm the great experience of the team members, that is, 58% of respondents answered that they have an advanced level of experience. Only 15% of respondents are at the Beginner level, which confirms the assumption that team members in Croatian companies are very familiar with the digital project management model in management. The results of the research are shown in Figure 5.



*Picture 6: How familiar are you with the impact of digital transformation on project management?*

*Source: Koščak, Master Thesis, 2023.*

The respondents are very familiar with the impact of digital transformation on business activities in the company as well as the impact of digital transformation on the development of project management. Team members who do not feel familiar with the impact of digital transformation on project management make up only 3%, which is not statistically significant and does not affect the overall research result. The results of the research are shown in Figure 6.



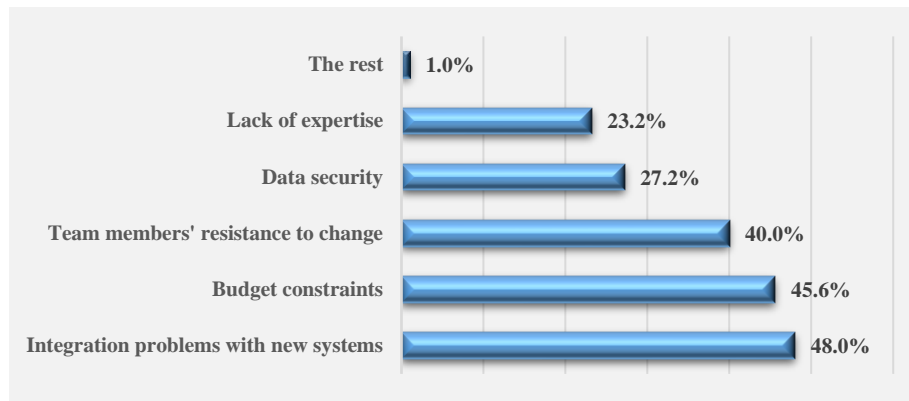
*Picture 7: How has the adoption of digital technologies affected the deadlines and budgets of projects in your company*

*Source: Koščak, Master Thesis, 2023.*

The adoption of digital technologies has had a positive impact on the deadlines and budgets of Croatian companies that have introduced digital project management. There were 85% of respondents who believe that the introduction of project management had a positive effect on content delivery deadlines and better budget control. However, there are also 11% of respondents who believe that the introduction of digital project management has not had a positive effect, which can be an incentive for further research into why this is happening. The results of the research are shown in Figure 7.

### **5.3. Opportunities and challenges in the use of digital project management models**

The first two sets of questions referred to usage models and the amount and strength of acceptance of project management in companies. The third set of questions is more future-oriented and refers to opportunities and challenges in using the digital project management model. The first two sets of questions proved a strong connection between the capabilities and effects of project management, on the one hand, and the involvement, engagement and expertise of project teams, on the other. Respondents identify the biggest obstacle in the future use of project solutions in the problems of integration with new management systems. The largest number of respondents who are members of project teams are "digital natives", but there are still problems with other team members who need more education for the efficient application of project management. Palfrey and Gasser (2008) point out that digital natives can also help solve the problem of privacy by helping and educating each other.



*Picture 8: What challenges have you faced in adopting digital technology for project management?*

*Source: Koščak, Master Thesis, 2023.*

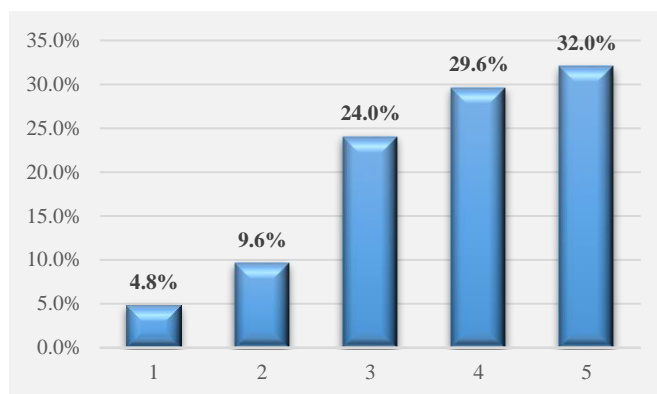
In addition, almost half of the respondents recognize problems with budget constraints, which hinders the efficient delivery of results. With 40% of responses, there is a very large number of team members who do not adapt to changes quickly and efficiently, which can have a negative impact on the company's digital project management in the future. The results of the research are shown in Figure 8.



*Picture 9: What are the three fundamental advantages of digital technology in project management*

*Source: Koščak, Master Thesis, 2023.*

The effectiveness of digital project management on the company's competitive ability is confirmed by the research results shown in Figure 9. Respondents were offered multiple answer options, and 60% of respondents chose an increase in the efficiency and productivity of the overall project when digital project management is used. In addition, 58.4% of respondents believe that the banner and project monitoring possibilities are increasing so that project managers can evaluate the success of each individual phase at any time. Only 0.8% of respondents believe that feedback is realized faster, which is expected because project managers can control work activities at any time, which reduces waiting for feedback to an unnecessary item. Project management enables continuous sharing of information and resources within the company, as well as between companies. Schwab (2016) emphasizes that when firms share resources through collaboration innovation, significant value can be created for both parties as well as for economies in which such collaborations take place.



*Picture 10: How satisfied are you with the impact of digital technology on project management in your company?*

*Source: Koščak, Master Thesis, 2023.*

The final question of the research refers to the overall satisfaction of employees with the impact of project digital management on the company's business results. Respondents were offered an answer in the form of a rating. Almost one third, or 32% of respondents, gave the highest rating and were extremely satisfied. 29.6% of the respondents are very satisfied, which with the previous group is 61.6% of employees. Only 4.8% of employees are extremely dissatisfied, which can be accepted as a very good result. From the results of the survey of employee satisfaction with the impact of digital technology and project management on their companies, it can be concluded that employees are extremely satisfied, which will directly affect motivation and further development of skills in this area. The results of the research are shown in Figure 10.

## 6. CONCLUSION

The research results proved great progress in the field of digital project management in Croatian companies. The research was based on three research questions, which consisted of several questions, and the answers showed a large and strong connection between the development of digital project management and the satisfaction of project team members. In the context of the first research question, the results proved the very frequent and efficient use of digital project team models, i.e. digital project management. The respondents emphasized that digital management is extremely important for the success of the company, that is, for building a sustainable competitive advantage. Almost half of the respondents, i.e. 42% of the respondents, gave the highest rating to the importance of digital project management for successful company management. The development of digital project management is already at a very high level, which is proven by the use of the hybrid model as the most commonly used project management model. In the context of the second research question, most respondents belonged to the field of high technologies, which was to be expected. On the one hand, one could have expected more respondents in the field of healthcare, which is progressing strongly under the influence of digital transformation. Based on the number of respondents, it is not possible to determine the real impact of the development of project management in healthcare, and how much the respondents were really willing to fill out the questionnaires. Most members of project teams are very familiar with the use of project management and believe that digital project management is strongly correlated with meeting deadlines and budget control. However, 11% of respondents believe that there are certain problems in that area. In the context of the third research question, the problems of adaptation to new systems were proven and continuous limiting of the budget. The use of digital project management increased the productivity and overall performance of the company.



In addition, the activities are completely transparent, and the control of the project is a daily routine without waiting for the completion of individual activities and the activation of the feedback link. Employees in Croatian companies who are members of project management teams are extremely satisfied with the results, which is a solid foundation for the further development of digital project management. The overall results of the research indicate a very high level of development of project team models in Croatian companies, which is a very solid foundation for the adoption of new and modern management skills in Croatian companies.

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## ANALYSING DEVELOPMENT INEQUALITY BETWEEN THE REGIONS OF EAST CENTRAL EUROPEAN MEMBER STATES

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### ABSTRACT

*The European Union is an institution for unique socio-economic integration with 27 members. Its efficiency, ensured by having similarly developed members, is largely dependent on whether the less developed countries joining the EU in or after 2004 can catch up with earlier member states; a process partly fuelled by diminishing inequalities between the regions of new entrants. This paper analyses whether socio-economic inequalities decreased between the regions of the former Eastern Bloc EU member states – the Czech Republic, Slovakia, Poland, Hungary, Bulgaria, Croatia, and Romania – between 2004 and 2022. The question arises as to what indicator is suitable to measure socio-economic development. While economic sciences generally use macroeconomic indicators (GDP and its derivatives) in this context, sociology analyses mortality indicators instead. The Human Development Index (HDI) could represent a transition between such approaches. This paper analyses the Regional HDIs and datasets of NUTS 2 regions within the surveyed countries (RHDI). Lacking HDI time series data on NUTS 2 level, they were calculated using Hardeman and Dijkstra's methodology. Measuring diminishing and increasing inequalities poses another issue. The theory of convergence proposed by Barro and Sala-i Martin was applied to determine changes in developmental differences. Not only can absolute beta-convergence calculations confirm equalisation between the regions of the seven analysed countries in the given period, but also show if regions are characterised by lagging or falling behind, catching up, or development. In our calculations the impact of two external factors were also considered: whether the country effect (whether the developmental dynamics of a region is influenced by the country it belongs to) and the impact of EU support (to which extent the support contributed to the convergence process) could be confirmed.*

**Keywords:** *beta-convergence, East-Central Europe, equalisation, HDI, NUTS2*

### 1. INTRODUCTION

The European Union is a unique institution for economic and social integration, which underwent a large-scale expansion in 2004 when, besides the Visegrad Group countries, Slovenia, the Baltic states, Malta and Cyprus joined it. Gaining EU membership for countries joining in 2004 and afterwards was partly motivated by their aspirations to converge on their richer counterparts in terms of standard of living. This idea is not foreign to the fundamental concept of the EU either; cohesion and structural funds, and the EU's joint budget all serve the purpose of moulding the various member states into a relatively homogenous unit as for their economics, and well-being in the long run. Nearly identical or similar levels of development also serve the interest of the whole EU community since neither the single currency can be adopted by countries with differing developmental levels nor could its benefits be fully reaped. Both individual and community motivations highlight the importance of analysing catch-up and convergence, producing a wealth of research, short analyses and publications on the issue to which this study aims to contribute. Measuring the level of development of various regions prompts the question as to which indicator should be monitored and what values we should base our conclusions on. The existence or absence of convergence among EU member countries is generally considered from an economic perspective; the indicators used in the analyses are mainly macroeconomic ones, such as gross domestic income, unemployment and employment

rates, budget balance, public debt, inflation and other rates that characterise the structure of the economy. In international publications, economic convergence is interpreted as the tendency towards the territorial convergence of per capita incomes (Dauderstädt, 2014). For example, Vojinović et al. analysed the catching up of the 10 countries joining the EU in 2004 compared to each other and to the 15 former member states of the EU using per capita incomes (Vojinović, Sanjaya, & Próchniak, 2009). Busch demonstrated the success of catch-up of the countries that joined in 2004 vis-à-vis the other member states by highlighting the finding that following their accession, the foreign trade, international capital and people flows of such countries had expanded substantially by 2012, and their gross national income, gross investment, gross domestic consumption, R&D expenditure and net capital stock had all shifted increasingly closer to the EU15 average (Busch, 2014). Filippetti and Peyrache examined the pace of catch-up between 1993 and 2004 for the countries joining in 2004 and 2007 and explained the acceleration of the catch-up process of the 12 new member states with the EU15 by a narrowing of the technology gap and an improvement in labour productivity (Filippetti & Peyrache, 2013). Several analyses carried out in the last twenty years have attempted to capture convergent or divergent processes from a social point of view, usually using mortality indicators. Life expectancy at birth in itself is a good indicator of the standard of living of a nation or region and can therefore serve convergence studies well. The use of mortality indicators has, however, on the one hand, been evidenced by studies of convergence between regions of a specific country, such as the analysis carried out by Montero-Granados et al. for Spain (Montero-Granados, Jiménez, & Martín, 2007). On the other hand, such social and health related approaches tend to feature in global studies too, for example, Moser et al. have presented evidence of convergence in living standards between 1950 and 2000 for 152 countries using life expectancy at birth, infant mortality, live births and population size as indicators (Moser, Shkolnikov, & Leon, 2005). In order to assess the development of each region from both economic and social perspectives I based my calculations on the Human Development Index (HDI); a composite indicator with health, education and economic dimensions. I limited my analysis to Eastern Bloc countries, since it is worth looking at the historical development of the EU member states that were part of the Socialist Bloc 30 years ago. The study seeks to answer three questions,

- 1) Is there any evidence of development convergence among former Eastern Bloc regions?
- 2) Were the changes in the regional human development index influenced by EU funding between 2007 and 2021?
- 3) Do country borders still exist as far as development trends are concerned, and is the change in development affected by the country that a certain region belongs to?

However, in answering these questions by analysing catch-up and interregional development convergence, we should bear in mind that catch-up is not guaranteed. Referring to the theory of optimal currency areas Artner and Róna showed that a weaker status (within the euro area) carries the risk of incomes shifting from less developed to more developed countries due to the former having a currency too strong for their economy (Artner & Róna, 2012). Consequently, less competitive countries will be forced to cope with this disadvantage as well after joining the single currency area, and this phenomenon also has a bearing on regional convergence. There have only been few examples of successful catch-up in the course of our history. In his study Mihályi highlights historical examples of failures in catching up (German unification, Soviet catching-up plans) and through Hungary's example demonstrate that Hungary would require 2-3 times higher growth rates to catch up with other EU member states. Yet, this additional growth is hindered by the indebtedness of the country's economic agents and the lack and inappropriate allocation of reserves in factors of production (Mihályi, 2011).

## 2. DATA

### 2.1. Definition of the regional development index

HDI is a composite indicator covering the three dimensions of human development: long and healthy life, education and adequate standard of living. HDI is the geometric mean of the normalised indices of these three dimensions. Although HDI was created by the UNDP to measure and compare countries' levels of development, this analysis focuses on NUTS 2 regions. With a view to the fact that no time-series HDI data are available for the EU regions, they needed to be generated<sup>1</sup>. To calculate the HDI for NUTS 2 regions, I followed the methodological description proposed by Hardeman and Dijkstra in their 2014 study but due to incomplete or incompatible data series I was forced to deviate from their methodology at some points. The authors compiled the Human Development Index by incorporating six factors:

- 1) Infant mortality: the number of deaths of children under one year of age expressed per 1000 live births a year.
- 2) Healthy life expectancy: an indicator that combines mortality and self-perceived health; the number of years an individual is expected to live in good perceived health.
- 3) NEET: the proportion of the population aged between 18 and 24 that is not at work, in education or training.
- 4) Tertiary education: the proportion of the population aged between 25 and 64 who have completed tertiary education.
- 5) Household net adjusted disposable income: the household net disposable per capita income of a region weighted by the ratio of the country's gross and net adjusted disposable income per capita.
- 6) Employment rate: the share of employed people aged 15 and over in the total population aged 15 and over (Hardeman & Dijkstra, 2014).

Due to the absence or incompleteness of data, I had to make changes in the application of two of the indicators defined by Hardeman and Dijkstra in my calculations as follows,

- 1) Instead of healthy life expectancy I used life expectancy at birth as our indicator.
- 2) Household disposable income calculations were not weighted.

Table 1 summarises the indicators as well as their units of measurement, dimensions and impact on HDI.

Indicator	Unit of measurement	Dimension	Impact
Infant mortality	‰	Health	negative
Life expectancy at birth	year		positive
NEET	%	Education	negative
Tertiary education	%		positive
Employment	%	Income	positive
Household net disposable income	euro/capita (at current prices)		positive

*Table 1: The sub-indicators of RHDI*

*(Source: Author's own complication based on Hardeman and Dijkstra 2014)*

The six indicators for the NUTS 2 regions of the Visegrad Group countries were sourced from the Eurostat website for the period 2001-2020.

<sup>1</sup> Several types of HDI calculations have been proposed for the counties and small regions of Hungary. The essence and findings of such calculations were summarised by Farkas Máté Bence in 2012 (Farkas, 2012).

In order to eliminate differences in units of measurement and magnitudes, the data were transformed using the following formulae,

$$x_t = \frac{x_i - \text{Min}(x_n)}{\text{Max}(x_n) - \text{Min}(x_n)} \quad (1)$$

and

$$x_t = \frac{x_i - \text{Max}(x_n)}{\text{Min}(x_n) - \text{Max}(x_n)} \quad (2)$$

where

$x_t$ : the transformed value of the variable in the given region in the given year,

$x_i$ : the original value of the variable in the given region in the given year,

$\text{Min}(x_n)$ : the minimum value of the given variable for all the years and regions, and

$\text{Max}(x_n)$ : the maximum value of the given variable for all the years and regions.

Formula (1) applies to indicators that have a positive effect on human development. If there is any rise in life expectancy at birth, the proportion of degree holders, employment rates and household net disposable income per capita indicators, the human development index will increase. Formula (2) applies to the transformation of the infant mortality and NEET indicators, since any increase in the value of these two measures will worsen human development, thereby reducing the HDI value. In both cases the transformed variables will range between 0 and 1. Once the data are transformed, the values of each dimension - health, education and income – can be determined by a simple arithmetic mean.

$$\text{HEALTH} = \frac{\text{IM}_t + \text{LE}_t}{2}$$

where the health dimension (HEALTH) for a given region in a given year is calculated as the arithmetic mean of the transformed variables (IM and LE) of infant mortality and life expectancy at birth for the corresponding region and year. Similarly, the education dimension (EDU) is defined as the arithmetic average of the transformed variables (TE and NEET) of the proportion of degree holders and the NEET indicator, whereas the income dimension (INCOME) is the arithmetic mean of the variables (EMP and NDI) constructed from the employment rate and household disposable income.

$$\text{EDU} = \frac{\text{TE}_t + \text{NEET}_t}{2} \quad (3)$$

and

$$\text{INCOME} = \frac{\text{EMP}_t + \text{NDI}_t}{2} \quad (4)$$

The value of the regional HDI indicator (RHDI) can be defined as the geometric mean of the three above dimensions.

$$\text{RHDI} = \sqrt[3]{\text{HEALTH} \times \text{EDU} \times \text{INCOME}} \quad (5)$$

(Hardeman & Dijkstra, 2014)<sup>2</sup>.

<sup>2</sup> Prior to transforming the variables, the authors smoothed the ones they deemed to be volatile using three-year moving averages, which I decided against to avoid any further loss of data.

## 2.2. Changes in regional classification

The NUTS 2 territorial classification system has changed several times. From 2003 to 2007 NUTS2003, from 2008 to 2011 NUTS2006, from 2012 to 2014 NUTS2010, from 2015 to 2017 NUTS2013, from 2018 to 2020 NUTS2016 was in force, and since 2021 NUTS2021 has been in effect. Due to these periodic changes, I limited the time horizon of the study to the period from 2007 to 2021. Furthermore, 7 Polish regions were excluded from the analysis, and the NUTS 2016 classification was used for the Croatian regions, while regarding the Hungarian regions, Budapest and Pest were included in the calculations under the collective name of Central Hungary.

## 3. METHODS

The calculations presented in this study relate to absolute beta convergence, conditional beta convergence and sigma convergence tests. The beta convergence calculations follow the methodology proposed in the 1992 paper of Sala-i-Martin and Barro (Barro & Sala-i-Martin, 1992). However, while the original methodology examines convergence using GDP per capita in PPS figures, in this paper RHDI is used as an indicator. Conversion between the various regions of the seven countries evidenced by narrowing regional development gaps can be assessed using sigma convergence. This method tests whether the differences between the selected macroeconomic indicators of the given economies show a downward trend over time. These differences can be expressed by standard deviation, variance or relative standard deviation (Rapacki & Próchniak, 2009). Absolute beta convergence is confirmed when the human development indices of less developed regions increase faster than those of regions with higher initial development indices. As long as the cross-sectional HDI data series of several regions are known for 2007 and 2021, respectively, the following regression equation can be written,

$$\frac{\ln\left(\frac{RHDI_{2021}}{RHDI_{2006}}\right)}{t-1} = \alpha + \beta \ln(RHDI_{2006}) \quad (6)$$

where the dependent variable is the logarithm of the average annual change in HDI between 2007 and 2021 and the independent variable is the logarithm of the human development index of the base year (2007). If  $\beta < 0$ , convergence can be confirmed within the data series. The rate of convergence is determined by using the following formula,

$$b = -\frac{1}{T} \ln(1 + \beta T). \quad (8)$$

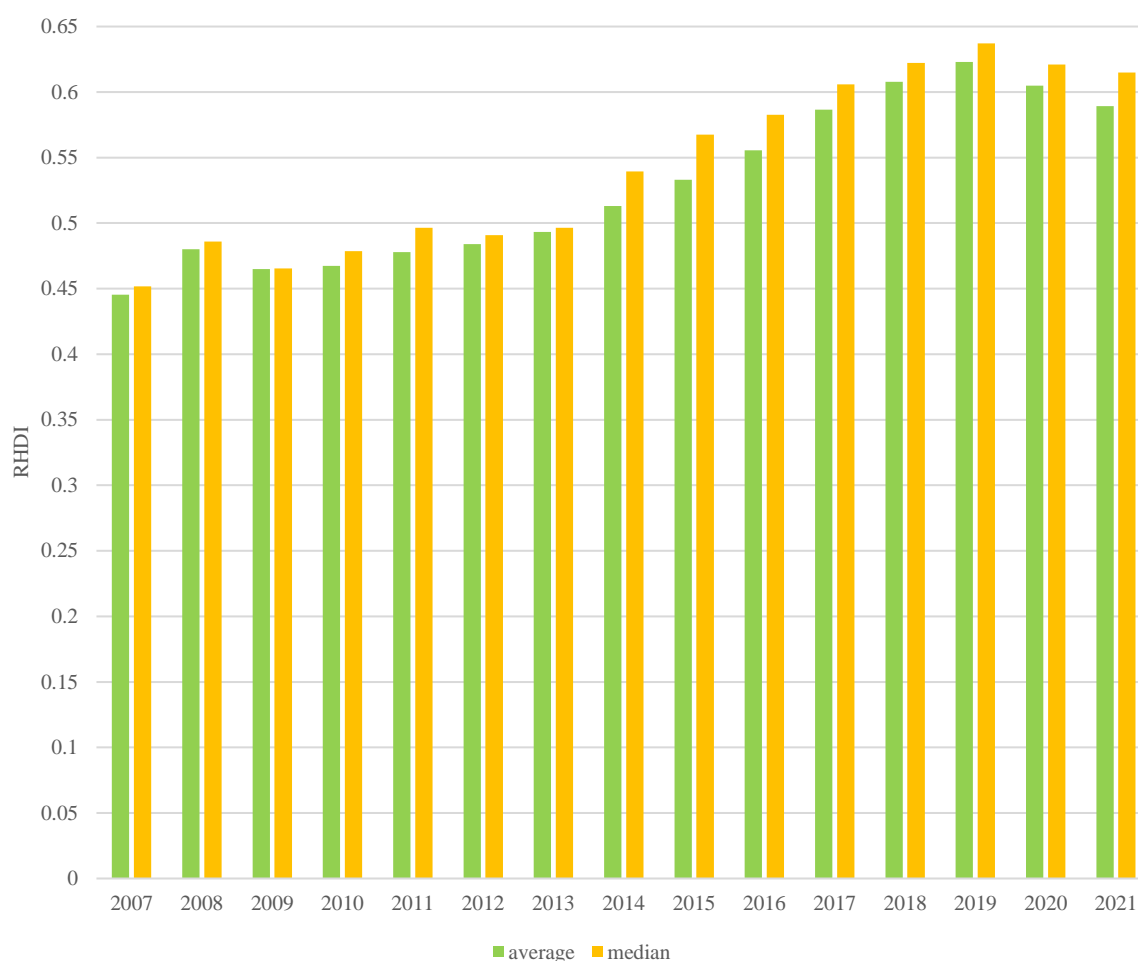
The rate of convergence in a given period shows the average percentage of the distance from equilibrium that the regions under study covered in one year. Having analysed absolute beta convergence, the paper furthermore examines conditional beta convergence in more detail. The regression estimates of conditional beta convergence may use different variables, for example, conventional macroeconomic indicators. However, the strong relationship between them (e.g., GDP and employment, budget deficit, rate of investment, etc.) and the amount of EU funding per capita received by the regions over the period under consideration might cause problems. It is not practical to consider the country effect in the conditional beta convergence calculation, partly because the inclusion of 7 countries as binary explanatory variables makes interpretation cumbersome and partly because there is a strong relationship between country affiliation and the amount of EU funding, which will lead to multicollinearity. Therefore, this effect was tested separately using an F-test.



## 4. RESULTS

### 4.1. Changes in the RHDI over the period under review

The aggregate results of the calculations are summarised in Figure 1. The chart illustrates how average and median RHDI for the regions of the four countries evolved over the period. Both the median and average RHDI increased from 2007 until the advent of the global economic crisis in 2009, when, after a post-crisis slowdown, increased yet again until the outbreak of the COVID-19 pandemic. As evidenced by the calculations, the median values are consistently above the average ones, suggesting that half of the regions under study have above-average development indices.



*Figure 1: Average and median RHDI for the regions under study between 2007 and 2021  
(Source: Author's own calculation based on Eurostat data)*

If we compare the development of the regions of the seven countries to the average and median values of all regions in the EU<sup>3</sup>, we will find that the seven countries under review performed below the EU average rate until 2014, after which, however, reached a level of development in line with the EU average rate. By calculating the chronological averages of the regional development indices for each region in each year, we can identify the least and most developed regions. The following table summarises the quartile where the regions under study belong based on their average RHDI over time.

<sup>3</sup> See (Tóth, 2021) for more detailed RHDI values of the EU member states.

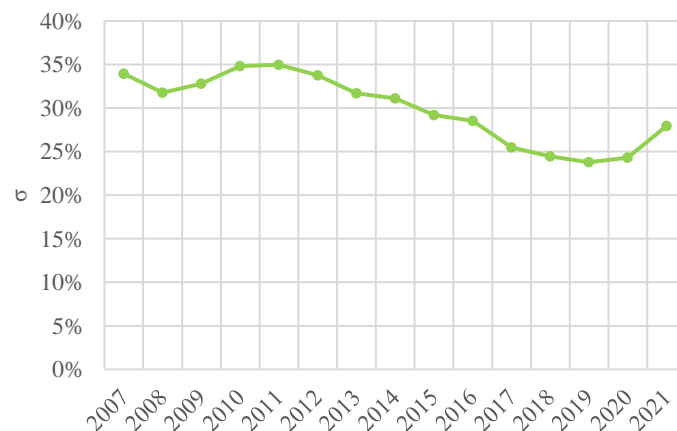
<i>Lower 25% RHDl value between 0.203 and 0.394</i>	<i>Second 25% RHDl value between 0.409 and 0.533</i>	<i>Third 25% RHDl value between 0.545 and 0.621</i>	<i>Upper 25% RHDl value between 0.627 and 0.874</i>
Severozapaden (BG31)	Southern Transdanubia (HU23)	Kujawsko-Pomorskie (PL61)	Bucuresti - Ilfov (RO32)
Yugoiztochen (BG34)	Nord-Est (RO21)	Lubuskie (PL43)	Central Hungary (HU10)
Sud-Est (RO22)	Vest (RO42)	Western Transdanubia (HU22)	Wielkopolskie (PL41)
Severen tsentralen (BG32)	Nord-Vest (RO11)	Opolskie (PL52)	Západné Slovensko (SK02)
Centru (RO12)	Southern Great Plain (HU33)	Dolnoslaskie (PL51)	Moravskoslezsko (CZ08)
Yuzhen tsentralen (BG42)	Kontinentalna Hrvatska (HR04)	Slaskie (PL22)	Strední Morava (CZ07)
Severoiztochen (BG33)	Jadranska Hrvatska (HR03)	Stredné Slovensko (SK03)	Severovýchod (CZ05)
Northern Hungary (HU31)	Warminsko-Mazurskie (PL62)	Severozápad (CZ04)	Jihozápad (CZ03)
Sud - Muntenia (RO31)	Východné Slovensko (SK04)	Yugozapaden (BG41)	Jihovýchod (CZ06)
Northern Great Plain (HU32)	Zachodniopomorskie (PL42)	Pomorskie (PL63)	Strední Cechy (CZ02)
Sud-Vest Oltenia (RO41)	Central Transdanubia (HU21)	Malopolskie (PL21)	Bratislavský kraj (SK01)
			Praha (CZ01)

*Table 2: Classification of analysed regions based on chronological averages of RHDl  
(Source: Author's own complication using Eurostat data)*

In terms of development, the regions in the lower quartile are exclusively Romanian and Bulgarian. In the second and third quartiles regions of all the seven countries are represented, while the upper quartile is dominated by Czech regions (as all but one Czech regions are in this category).

#### 4.2. Testing sigma convergence

The trend in development changes will be first analysed using sigma convergence. The relative standard deviation of the regions' RHDl between 2007 and 2021 is shown in Figure 2.



*Figure 2: Sigma convergence between the regions under study  
(Source: Author's own calculation based on Eurostat data)*

This figure illustrates the downward trend in the annual relative standard deviation of RHDI over time. The global economic crisis of 2008 and the pandemic starting in 2019 did induce an increase, by causing the development gaps to widen during the periods of crises, but the standard deviation over the whole period is characterised by a relatively high decrease of 6% points.

#### 4.3. Testing absolute beta convergence

Absolute beta convergence is confirmed by regression estimation as indicated at the beginning of the paper, where the explanatory variable is the initial logarithmic value of the regional HDI in 2006, and the outcome variable is the logarithm of the average change in HDI between 2006 and 2017. The results of the calculations are shown in the following figure.

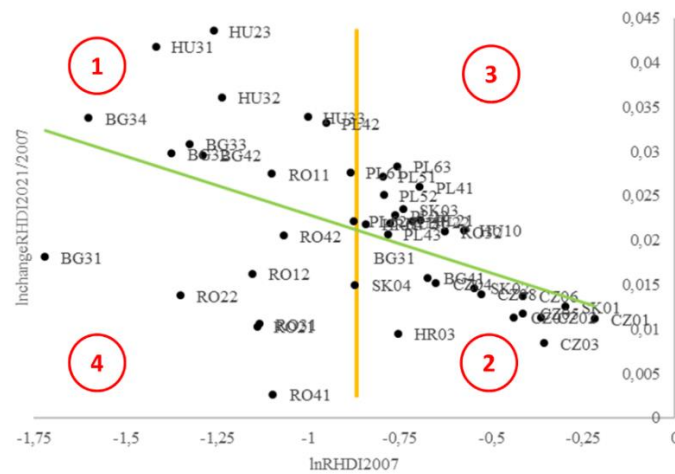


Figure 3: Beta convergence in the NUTS2 regions of the seven countries  
(Source: Author's own calculation using Eurostat data)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.508	0.258	0.241	0.00804

a Predictors: (Constant), ln2007

b Dependent Variable: Invált

Table 3: Explanatory power of regression estimation  
(Source: Author's own calculation using Eurostat data)

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.01	0.003		3.042	0.004
	ln2007	-0.013	0.003	-0.508	3.867	0

Dependent Variable:  
Invált

Table 4: Coefficients of regression estimation  
(Source: Author's own calculation using Eurostat data)

The results of the calculations indicate that the development index of the base year, which is the variance in the logarithm of RHDI, explains the variance of the (logarithmic) average growth rate of RHDI to a slightly less than medium extent, to 25.8%, which means that the development convergence between the regions under study is moderately influenced by the initial development levels of the respective regions<sup>4</sup>. Beta is negative and significantly different from zero, which means that beta convergence can be confirmed between 2007 and 2021. Having learnt the value of beta, the convergence rate calculation yields 0.0145. This value indicates that the regions of the seven countries have, on average, shifted towards the equilibrium or steady state by 1.45% of the total distance in one year. For a more nuanced picture, let us divide this graph into four parts. Firstly, along the regression line (countries above and below the line) and secondly along the average value of RHDI in 2007. By doing so, we can classify the countries into four groups.

- 1) The first quarter includes regions that demonstrated relatively high average growth on a relatively low initial development index (less developed but catching-up regions). This category includes 4 Bulgarian regions (Severen tsentralen, Severoiztochen, Yugoiztochen, and Yuzhen tsentralen), 4 Hungarian regions (Southern Transdanubia, Northern Hungary, Northern Great Plain, and South Great Plain), 3 Polish regions (Zachodniopomorskie, Kujawsko-Pomorskie, Warminsko-Mazurskie) and 1 Romanian region (Nord-Vest).
- 2) In the second quartile there are regions with relatively higher initial levels of development and lower average growth rates as compared with the regression estimates (developed but lagging regions). This group includes 1 region in Bulgaria (Yugozapaden), all the Czech regions (Praha, Strední Cechy, Jihozápad, Severozápad, Severovýchod, Jihovýchod, Strední Morava, Moravskoslezsko) 1 Croatian region (Jadranska Hrvatska) and 2 regions in Slovakia (Bratislavský kraj, Západné Slovensko).
- 3) The third quarter includes regions which, having a relatively high initial development index, reached higher average growth rates than the regression estimate (developed and growing countries). This category includes 1 Croatian region (Kontinentalna Hrvatska), 3 Hungarian regions (Central Hungary, Central Transdanubia, Western Transdanubia), 7 Polish regions (Malopolskie, Slaskie, Wielkopolskie, Lubuskie, Dolnoslaskie, Opolskie, Pomorskie), 1 Romanian region (Bucuresti-Ilfov) and 1 Slovak region (Stredné Slovensko).
- 4) The fourth quarter consists of relatively low-income countries that are not catching up (less developed and lagging behind). This group includes 1 region in Bulgaria (Severozapaden), 6 in Romania (Centru, Nord-Est, Sud Est, Sud-Muntania, Sud-Vest Oltenia and Vest) and 1 in Slovakia (Východné Slovensko).

The first and second quarters include regions that strengthen the convergence process: less developed but high growth regions and highly developed but slow-growing regions, respectively, who are the driving forces of the convergence process.

The third and fourth quarters consist of regions that act against convergence. Regions that are already lagging behind and demonstrate low development potentials, on the one hand, and more developed regions that are capable of further development, on the other hand.

#### **4.4. Testing for conditional beta convergence**

When testing for conditional beta convergence, we examine how the rate of convergence is affected by the amount of funding received in the last two or, for countries that joined in 2004, the last three EU budget cycles. For the sake of comparison, the logarithms of the average annual EU funding per capita figures expressed in euro are included in the regression equation. The results of the calculations are shown in the following tables.

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<sup>4</sup> Overall, the model criteria are not met: the residuals do not have constant variance, nor are the error terms normally distributed so the results are not statistically stable, but in my opinion the assumption of a tendency towards equilibrium is not incorrect.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.508	0.258	0.223	0.008134480270

Predictors: (Constant), lneupay, ln2007

Dependent Variable: Invált

*Table 5: Explanatory power of regression estimation  
(Source: Author's own calculation using Eurostat data)*

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.011	0.011		0.975	.335
	ln2007	-0.013	0.003	-0.508	-3.822	.000
	lneupay	0.000	0.003	-0.012	-0.091	.928

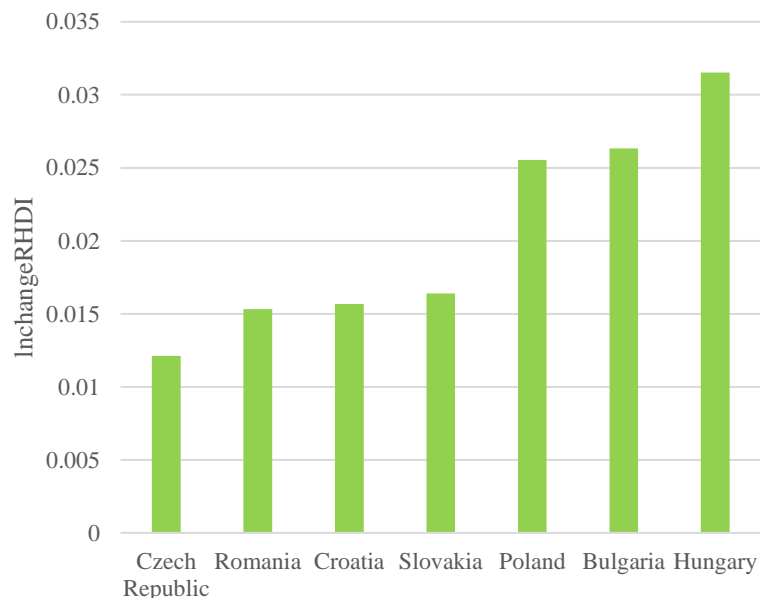
Dependent Variable: Invált

*Table 6: Coefficients of regression estimation  
(Source: Author's own calculation using Eurostat data)*

The results indicate that although the explanatory power of the model increased, the amount of EU funding has no significant effect on the dependent variable. The independence of EU funding and the average growth rate of RHDI can be tested by a simple correlation calculation: no significant relationship be confirmed between the average rate of change in RHDI and the amount of EU funding either (correlation coefficient 0.25 and  $p=0.092$ ).

#### 4.5. Testing for country effect

For the reasons propounded at the end of Chapter 4, the country effect (that is to what extent the country affiliation of a region affects the average increase in the region's RHDI) is tested by analysis of variance. The following figure shows the logarithm of the change in RHDI by country between 2007 and 2021,



*Figure 4: Logarithm of the change in average RHDI by country  
(Source: Author's own calculation using Eurostat data)*

Changes in the regional development index indicate that the Czech Republic had the lowest average growth rate over the period while Hungary had the highest. In 2007, the Czech regions generally had a higher level of development, whereas the Hungarian ones belonged to the low-development group, so this graph also suggests a narrowing of the development gap between regions. The average change in RHDI varies significantly across the countries ( $p=0.000$ ) while the explanatory power of country affiliation is quite high: the country effect explains 50% of the variance in the average change in RHDI.

## 5. SUMMARY AND CONCLUSION

Our findings indicate that the development levels of the Eastern Bloc regions are overall converging. Generally speaking, the regions with a lower development index in the initial year of 2007 were able to develop faster than their more developed counterparts during the period under review. It is important to note that although the trends towards convergence were stronger, there were 8 (typically Romanian) regions with a relatively low growth potential that originally started from a lower level of development and 13 (predominantly Polish and Hungarian) regions with a relatively higher average level of development that originally started from a higher level of development. The development trends of the 21 regions tend to promote divergence, and therefore, in the interest of convergence, either the socio-economic development of these regions should be promoted or the pace of development 'slowed down'. An interesting finding was that EU funds did not significantly affect the average change in the development index, and the differences between regions were not significantly affected by these funds either. Further investigations are needed to determine its causes: whether they lie in the application and distribution systems of the individual countries or in the EU's funding initiatives and distribution system. While EU funding did not have an effect on the changes in the development indices within this calculation methodology, the average rates of change in the RHDI of each country region were significantly different. In other words, EU accession did not 'abolish country borders' in terms of development, since the differences persisted even after 10-20 years, and while they are not exactly increasing, they are, however slowly, decreasing. Both EU funding and the socio-economic exclusion politics of the countries in question should be the subject of further studies. For reasons of space, this study does not provide answers to many questions: it would be worthwhile to examine the legal aspects of the EU funding system and the conditions of allocating funds in the future. This would help answer the question whether the EU's cohesion policy is effective enough. Also, the extent of the country effect inevitably calls for an analysis of the differences in economic and social policies and development priorities between countries.

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## IMPORTANCE OF MONITORING, EVALUATION, EDUCATION AND COMMUNICATION IN ACHIEVING STRATEGIC GOALS

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### **ABSTRACT**

*Crisis, pandemic, wars... fear of uncertainty only confirms the importance of planning and Alan Lakein's quote: "Planning is bringing the future into the present so that you can act now." The large number of strategies over the past few years is a clear indication of the thoughtfulness of policy makers in defining goals which they want to achieve. The desire to adopt strategies lies in the desire to define change and ensure a better future through the achievement of defined goals. When planning, it is necessary to take into account the answers to the questions: Who will do it? How will it be done? When will it be done? What will be done with the results? For this reason, there is an increasing focus on monitoring and evaluation as the most important parts of strategic planning. In order for the implementation of strategic planning to take place in accordance with the defined time frame, it is necessary to define a clear structure for the implementation of strategic planning. For this purpose, employee education and mutual communication are an essential part without which strategic planning cannot be carried out with quality. The paper analyzes the concepts of strategy, strategic planning, monitoring, evaluation, and education. The paper shows how important education, interpersonal relations, i.e. communication is when carrying out strategic planning. How do organizations invest in monitoring and evaluation? The results of the research, stated in this paper, show the consequences of neglecting education and good communication on the timely achievement of strategic goals.*

**Keywords:** *strategic planning, strategy, monitoring, evaluation, education*

### **1. INTRODUCTION**

States today have a more important task than ever - to ensure the efficiency of the work of public administration in ensuring the availability of resources for the achievement of set goals. Until now, the implementation of public policies was based on the adoption of numerous strategies without clear implementation, without concrete results of their evaluation. The result of all this is 64 valid acts of strategic planning (Ministry of Regional Development and Funds of the European Union, 2023). The mentioned was not implemented and its adoption was delayed. The changes that are taking place are not in accordance with the acts of strategic planning. States are expected to constantly invest in the economy and be resilient to crises such as we had with the coronavirus. Increasing efficiency is possible only through clearly established links between the past, present and future, in relation to the necessary interventions and results. For this purpose, monitoring and evaluation (M&E) are the main elements that can help the organization to extract relevant information from past and current activities that can later be used as a basis for programmatic redirection and planning. The paper incorporate a theoretical and research part. In the final part of the paper, the authors make proposals to the bodies in the strategic planning system for further action based on the example of good practice of the Kingdom of Denmark and the analysis of the national strategic documents of the Republic of Croatia, primarily the National Development Strategy of the Republic of Croatia (NDS).



As a result, the following hypotheses were set:

- **H1:** Continuous communication and employee education are the key to making recommendations and successful monitoring indicators.
- **H2:** A clear structure and continuous monitoring of the implementation of the strategic document is essential for the achievement of pre-set strategic goals.

The paper aims to emphasize the importance of M&E elements in strategic documents at the national level, which are essential for effective state management. The paper will define and explain the role of strategic planning in development management, analyze and determine limitations in the M&E of strategic documents. The legislative framework for the creation of strategic documents will also be analysed, and based on the research of Denmark's good results, guidelines will be proposed that can be used for a better quality creation of strategic documents with reference to M&E on the example of the Croatian NDS.

## **2. THEORETICAL BACKGROUND - DEFINING TERMS: STRATEGY, STRATEGIC PLANNING, MONITORING AND EVALUATION, EDUCATION**

### **2.1. Defining the concept of strategy**

The origin of the term comes from the Greek word *στρατηγία* which means leading an army or supreme command. Originally the term was related to military operations and warfare divided into: land, sea and air, and then into the strategy of local, limited war, special war strategy, nuclear strategy, etc. The concept expanded to the general area, therefore the general strategy is also called global or national. It is aimed at determining and achieving goals in various areas such as military, political, economic, diplomatic, etc. Military strategy is a part of general strategy. The term entered other spheres and is identified with long-term planning, which states publish in strategic plans that define the state's interests and the implementation plan. (Hrvatska enciklopedija, 2021) The importance of strategy was highlighted by Michael Porter who considers strategy as: "creating a unique and valuable position, which includes a different set of activities. If there was only one ideal position, there would be no need for a strategy". (Porter, 1996) For Kaplan and Norton, it is important to establish a special unit (*Office of strategy management - OSM*) for strategy implementation, which is the opposite of strengthening decision-making from the top down by encouraging initiatives within the organization. The unit becomes responsible for the ideas that pass through the organization, which are then evaluated. The best concepts are adopted and incorporated into the organization's strategy. OSM is an organization that facilitates, rather than dictates, the decision-making process. (Harvard business review, 2005) Grant points out that the strategy is not about whims, stargazing, wishful thinking or the pursuit of a novel. He believes that strategy implies the recognition and exploitation of sources of profitability in business. Identifying sources of profitability requires a careful and systematic analysis of industry economics and the basis of competitive advantage. (Grant, 2021)

### **2.2. Defining strategic planning**

Strategic planning refers to "the deliberate, disciplined effort to produce the fundamental decisions and actions that define what an organization (or other entity) does and why it does it." Emphasizes purpose and discipline in the planning process to achieve key organizational goals. (Bryson, Hamilton Edwards, Van Slyke, 2018) Wolf and Floyd define strategic planning as "a formalized, periodic process that provides a structured approach to strategy formulation, implementation, and control. Likewise, they emphasize the purpose of strategic planning in influencing the strategic direction of the organization and the coordination and integration of strategic decisions." (Wolf, Floyd, 2017) For Mintzberg, strategic planning is an oxymoron, suggesting the term strategic programming because "analysis is not synthesis, strategic

planning has never been strategy making.” Analysis can precede and support synthesis, follow and elaborate synthesis, but it cannot replace synthesis... Planning cannot proceed without the existence of previous strategies. (Mintzberg, 1998) In its strategic documents Croatia states that strategic planning is “a process that defines the course of action, that is, a strategy, plan or program, and making decisions on the allocation of resources in accordance with that strategy, plan or program. Strategic planning also refers to control mechanisms for the implementation of a strategy, plan or program.” (Ministry of Regional Development and Funds of the European Union; 2020)

### **2.3. Defining Monitoring and Evaluation**

The main objective of M&E is to improve efficiency by establishing a clear link between the past, present and future regarding the necessary interventions and results. Without M&E, we would not know if we achieved the desired goals, progressed or received recommendations for improvement. (UNDP, 2009) For Jahid, the M&E system is “an important public management tool in developed and developing countries that supports and improves evidence-based decision making, policy making and budgeting.” The components of M&E are: structural independence, scope, human capacity, strategic and annual plans, management information systems, evaluation, synergies and coordination, dissemination and reporting, and utilization. The M&E system should improve evidence-based decision making. (Jahid, 2019) The M&E system depends on institutionalization and coordination.

### **2.4. Defining the concept of education**

Education (*lat. educatio*) is defined as a process of education, transfer of experience, knowledge, norms and values for the development of human society. At the individual level, it includes the process of acquiring knowledge, skills and habits. (Hrvatska enciklopedija, 2021) Regarding of strategic planning, education helps employees identify goals, create plans, and monitor progress toward goals. It contributes to understanding and dealing with changes in the organization's environment and how to react to them. Organizations with well-educated employees in strategic planning are better prepared to face challenges and achieve goals. Strategic advisor indicates an occupation that will be in demand in the near future, indicating the importance of strategic planning in business environments. (Map of jobs and skills for the future, 2021)

## **3. ANALYSIS OF CHALLENGES IN MONITORING AND EVALUATING STRATEGIC DOCUMENTS**

Strategic planning is an essential process in the management of organizations, regardless of their size and activity. It includes defining goals, strategies and action plans that will enable organizations to realize their vision and achieve success in the market. However, once the strategic documents have been formulated, we face challenges in M&E, their implementation. Analysis of challenges in M&E strategic documents is a key step in understanding the complexity and effectiveness of strategic planning implementation in organizations. In the paper, the authors explore the challenges through the perspectives of strategic planning and management theorists. According to Kotter, success in organizational transformation depends on avoiding eight mistakes: lack of sense of urgency, lack of a powerful coalition guiding the process, lack of vision, insufficient communication of the vision, failure to remove obstacles to the new vision, lack of systematic planning and creation of short-term gains, declaring victory too early, and lack of entrenched change in the culture of the organization. (Kotter, 2012) A World Bank analysis done in 2007 points to challenges related to employees' lack of knowledge and understanding of M&E. The analysis highlights the need to have well-trained employees or consultants in the field of M&E.

For this reason, employees should be able to interpret monitoring data to understand trends, data definitions, breaks in time series, and recognize flaws in assessment methodology or unreliable data. (World Bank, 2007) It is recommended to evaluate and reinforce existing monitoring systems as necessary, evaluate the impact of key interventions rigorously, ensure data collection facilitates goal and indicator comparisons. Enhance M&E capacities at all levels (national, regional, and local), involve stakeholders (government agencies, civil society, and private sector), and establish a feedback system for continuous improvement. (Prennushi, Rubio, Subbaro, 2002) UNEP's article "*Lessons Learned from Evaluation: A platform for Sharing Knowledge*" from 2007 refers to the importance of learning that occurs during the evaluation itself through presentations and workshops for examining and discussing the findings. The need to provide feedback through face-to-face interaction is emphasized so that the lessons of evaluation become learned and not just adopted. (UNEP, 2007) When it comes to the M&E system, there are challenges with increasing monitoring capacity, including high staff turnover and a lack of funding to hire sufficient skilled workers. (Anderson, Biscaye, LaFayette, Martin, Richardson, 2015)

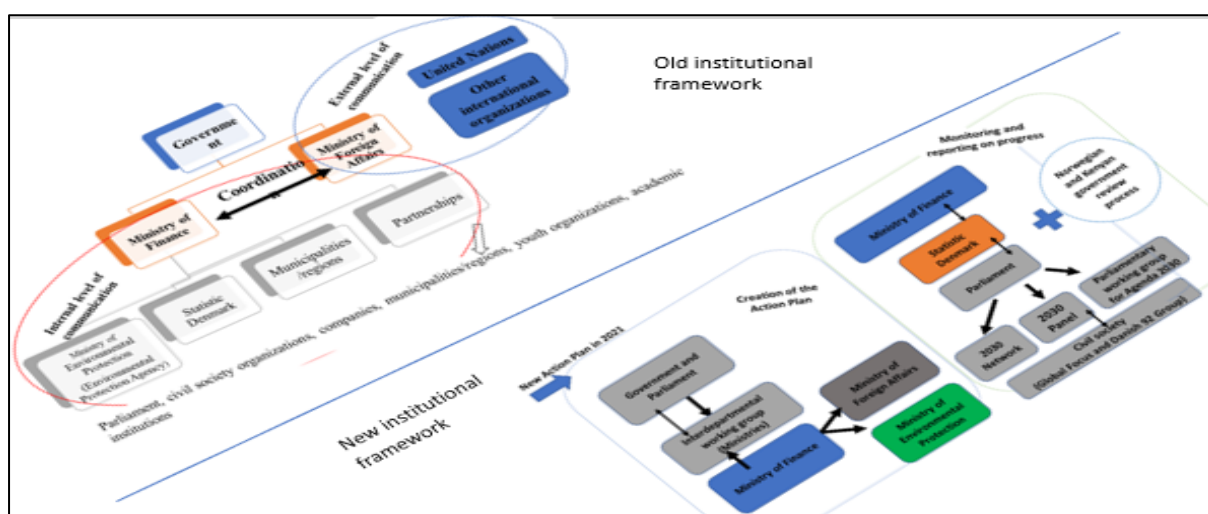
#### **4. STRATEGIC PLANNING - EXAMPLE OF THE KINGDOM OF DENMARK**

As an example of good practice in M&E, the Danish sustainable development strategy is taken as it ranks second in the world in the international comparison of the national implementation of Agenda 2030 and the 17 SDGs in the Sustainable Development Report 2020. Danish Strategy (*A shared future - balanced development*) adopted in 2003, refers to a period of twenty years representing the framework of the national initiative in the field of sustainability. (The Danish Government; 2002) The strategy emphasizes the joint responsibility of the state, local and regional self-government units, the business sector, schools, associations, voluntary organizations and citizens in participating and creating the development of society. The strategy monitoring system is designed to track progress in achieving sustainable development goals. The government continuously monitors and reports on the progress achieved through indicators that monitor development in relation to the goals and activities of the strategy. Indicators<sup>1</sup> are a tool for decision makers, and they are defined based on the National Sustainable Development Strategy and proposals from the public consultation. Their development takes place at international, regional forums and at local levels. Denmark has its own set of indicators for sustainable development created on the basis of an international set of indicators, which facilitates the comparison of trends in Denmark and other countries within relevant areas. The Danish indicators are based on scientific evidence through documented assumptions, used methods and available main database. According to the first report from 2003, several counties and municipalities in Denmark are in the process of establishing indicators for sustainable development as part of local Agenda 21 efforts. The above provides the possibility of comparing development at the local and national level. The strategy emphasizes the importance of understanding the impact of the economy on the environment and the use of scenarios for decision-making. It also emphasizes the importance of technological innovation and investment in the development of new technologies and materials. Education about sustainable development plays a key role in influencing the attitudes and behavior of individuals and society. (The Danish Government; 2002) The strategic document does not strictly state the institutional framework for implementation, however, it is evident from the document itself that it was drawn up by an inter-ministerial working group, under the secretariat of the Danish

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<sup>1</sup> The indicators are divided into: a) General set of key indicators – refers to the development and results in relation to the 8 general goals and principles of the Strategy. This set consists of 14 indicators. b) Detailed/specific set of indicators – refers to individual areas of activity, describing development and results in relation to some of the goals and activities of the strategy. This set consists of 90 indicators. The first update of the Danish Sustainable Development Indicators report from 2003 refers to a set of key indicators related to the 8 general goals and principles in the Danish National Strategy for Sustainable Development.

Environmental Protection Agency, and the public participated in the strategy preparation process. (European Commission, 2004) The main actors in Denmark important for achieving the goals of sustainable development are shown in Picture 1. At the top is the Government, having the main political responsibility. It adopted the strategy and is responsible for its implementation. The Ministry of Finance is crucial for the internal coordination of the national implementation of sustainable development goals and cooperates with other ministries especially the Ministry of Foreign Affairs and the Ministry of Environmental Protection. It is responsible body for the action plan. The Ministry of Foreign Affairs is important for external communication related to cooperation with the UN and other international organizations. The state statistics office, Statistics Denmark, holds a vital role in reporting. Alongside publishing data and indicator analyses on its pages, it distinctly outlines each ministry's responsibility regarding sustainable development goals within its jurisdiction. Denmark places significant emphasis on engaging citizens through active discussions on local planning topics, particularly through local and regional self-government units.



*Picture 1: Institutional framework (old and new)*  
(Source: Ostojić, 2023)

There is a strong emphasis on partnerships in Denmark, involving all stakeholders from Danish society in the implementation process. Cooperation with the parliament is crucial, especially due to the mostly minority governments, aiming to ensure continuous efforts toward achieving goals. According to data from Denmark's Voluntary Report on Progress in the Achievement of the SDGs from 2021, Denmark addressed challenges in achieving goals. The Ministry of Finance, in collaboration with various stakeholders (ministries, parliament, the private sector, civil society, academic institutions, municipalities and regions) coordinated the progress report, leading to marked improvements. The second VNR report enhanced its quality by incorporating independent assessments from Norwegian and Kenyan governments and civil society on each sustainable development goal. They participated in the review of the draft report and provided recommendations for its preparation. The report is based on a new institutional framework (Picture 1.) and SDG monitoring and research on monitoring the development of the SDGs, where Statistics Denmark has an important role, as well as a tool for monitoring the SDGs. The implementation of the action plan and sustainable development is financed from the budget, and ministries and other bodies are responsible for the distribution of allocation. (Ostojić, 2023) The new institutional framework was presented in June 2021 when the Government presented National Action Plan for Agenda 2030 and its 17 SDGs. The action plan primarily addresses domestic priorities, aiming to make sustainable development goals tangible and achievable.

It introduces fresh political initiatives for enhanced integration of SDGs into the Government's initiatives. The role of the Statistics Denmark and the Parliament is getting stronger. In the Parliament, Denmark established the All Party Coalition for SDGs (The 2030 Network) with representatives of all parliamentary parties. It is a platform for cooperation between parliament and civil society, the business sector, other social actors on the topic of SDGs. As an additional commitment to achieving the goals of the 2030 Agenda, the Parliamentary Working Group for the 2030 Agenda was established at the Finance Committee in 2018 as political support and coordination in the relevant parliamentary committees (Ostojić, 2023). In 2017, the 2030 Network established an advisory panel for the 2030 Agenda (The 2030 Panel). It consists of representatives of the business sector, the research community and civil society. The goal of the 2030 Panel is to support the political work of the 2030 Network by contributing to analyses, conversations, debates and knowledge exchange. Civil society coordinates its initiatives through two civil society networks: Global Focus and Danish 92 Group. Every four years, the government will submit an implementation report containing proposals for achieving the goals and adjusting the Action Plan. The report will be debated in Parliament, and the government has tasked the Statistic Denmark with submitting a report to the UN every year. Financial means for implementation are approved through the Parliament, in the annual negotiations on the budget for the next fiscal year. (Ostojić, 2023) Denmark educates the public about the importance of sustainable development through various initiatives, special events and campaigns (e.g. *Denmark for the Goals*). (Ostojić, 2023) The new action plan contains new political initiatives. It proposes a stronger secretariat for the 2030 Panel, which supports the political work of the 2030 Network through analysis, exchange of knowledge, and feedback. If Denmark wants to achieve its sustainable development goals, the Panel's work will be crucial in the coming period. The increased funding of secretariat services for the 2030 Panel supports, among other things, parliamentary strengthening of the SDGs as well as the Panel's work on monitoring and implementing the SDGs at national and international levels. (Ministry of Finance, 2021)

## **5. STRATEGIC PLANNING IN REPUBLIC OF CROATIA**

With the aim of improving the formulation and implementation of public policies and projects, Croatian Government initiated a reform of strategic planning and development management through the adoption of a legislative and institutional framework. The strategic planning system in Croatia is defined by the Law on the System of Strategic Planning and Development Management of the Republic of Croatia (Official Gazette 123/2017), adopted by the Croatian Parliament in 2017. The law defines the management of the strategic planning system of the Croatia, from the very preparation and drafting of the act, to implementation of monitoring, reporting on progress and evaluation of what has been achieved. The institutional framework of the strategic planning and development management system includes: the Government, the Parliament, state administration bodies, local and regional self-government units, the Office of the President of the Republic of Croatia, the Coordination Body, coordinators for strategic planning of state administration bodies, regional and local coordinators and others public bodies. (Ministry of Regional Development and Funds of the European Union) In 2021, Croatia established the National Development Strategy until 2030 (NDS 2030) as the primary strategic planning document, guiding the nation's development for the next decade. This strategy, the highest-ranking in Croatia's strategic planning hierarchy, shapes and implements the country's development policies. The Government decides on development matters, and the Coordinating Body (CB) coordinates the strategy development. Annually, the CB reports its implementation progress to the Government, which subsequently submits a progress report to the Parliament. Successful NDS implementation, achieving defined goals, relies significantly on effective M&E mechanisms, ensuring responsible information and data gathering.

The M&E system must be independent, objective and integrated in order to effectively monitor the achieved results. Objectivity and independence should be controlled by the Steering Committee for the preparation of the NDS, whose role is to monitor the implementation and fulfillment of indicators. The committee decides on amendments to the Strategy, and it consists of: the Prime Minister, representatives of the Government, representatives of social partners, the business and scientific research sector, and representatives of regional and local communities, but also representatives of the business and scientific community as independent experts. The responsibility for monitoring and reporting on the implementation of acts is on the Strategic Planning Coordinator of the central state administration body and the regional and local coordinators. Their task is to collect and enter indicators on the implementation of strategic planning acts into the information system. In order for the above to be done with quality, it is necessary to educate the network of coordinators regarding strategic planning. The network consists of coordinators for strategic planning of state administration bodies, regional coordinators and local coordinators. Education takes place in cooperation with the State School of Public Administration (SSPA), as well as the implementation of the project "Improved strategic planning at the regional and local level in Croatia."<sup>2</sup>

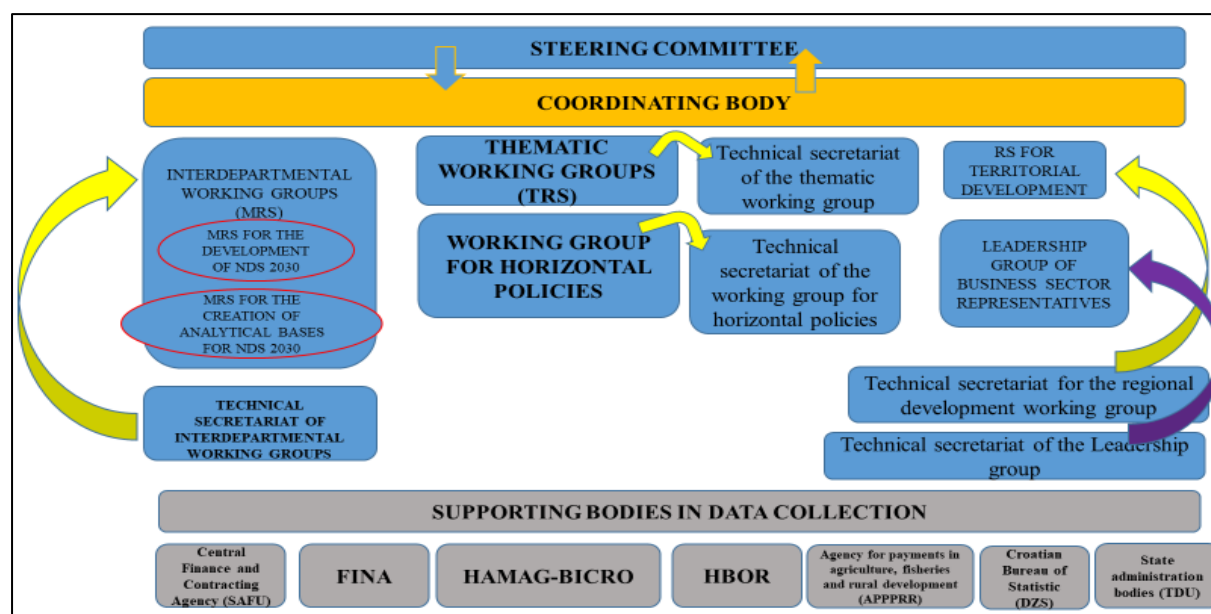
## **6. PROPOSALS TO BODIES IN THE STRATEGIC PLANNING SYSTEM FOR MONITORING AND EVALUATION OF STRATEGIC PLANNING ACTS ON THE EXAMPLE OF THE NATIONAL DEVELOPMENT STRATEGY 2030**

For M&E, it is very important to ensure continuous communication of all bodies involved in the implementation of the strategy with the aim of making data available on the results of public interventions. With regard to the previously mentioned stakeholders and the established system during the creation of NDS 2030, it should enable the further work of the previously mentioned groups that would cooperate with the network of coordinators, i.e. the Coordination Body. In this way, the collection and processing of information obtained from different stakeholders from different sectors would be facilitated. The previously mentioned is of crucial importance for the timely detection of possible deficiencies in the implementation itself and reacting to the necessary interventions. Additionally, as NDS 2030 is an umbrella strategic document to which all other strategic documents should be guided, it is necessary to include other supporting bodies (Picture 2.) that collect information for state administrative bodies in the implementation itself. A quality system will contribute to building trust, easier communication and faster flow of information between the various involved structures (state administration bodies, business sector, scientific research institutions, entrepreneurial support institutions, non-governmental organizations). The mentioned framework should provide answers to the questions: What needs to be monitored and evaluated; What activities are required for M&E; Who is responsible for M&E activities; When M&E activities are planned (time schedule); How is M&E carried out (methods); What resources are needed and where they are assigned. (UNDP, 2009) A summary of the monitoring process is contained in the Monitoring Report aiming to secure support for ongoing monitoring, provide guidance for involving additional actors, and offer recommendations to policymakers regarding the direction of implementation. The report addresses key questions: what is monitored? What elements of the monitoring policy are covered? In what time frame? Why were these indicators of progress chosen? Who defined the indicators? How was the data collected? What are the data sources? What data collection method was used? What problems arose during data collection and analysis? An important element of the report is the recommendations arising from the findings and conclusions.

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<sup>2</sup> The project is implemented by the Ministry of Regional Development and Funds of the European Union (MRRFEU), in cooperation with the Organization for Economic Cooperation and Development (OECD). It refers to strengthening skills and capacities for the implementation of NDS related to monitoring goals and performance indicators, as well as connecting goals and priorities at the regional and local level with those at the national level.

They refer to parts of the policy or measures that need to be changed, where it is important that they are clear, logical and applicable (Širinić, 2016).



Picture 2: Example of an institutional framework for data collection for the implementation of projects financed by EU funds  
(Source: Ostojić, 2023.)

An important role in this segment is played by the Ministry of Regional Development and Funds of the European Union, which regularly publishes Instructions. Although the NDS 2030 Strategy contains key performance indicators, initial (2019 or 2020) and target values in 2030, it would be necessary to determine the mid-term values achieved in 2025 in order to more easily control the implementation of the Strategy and react more quickly to the necessary corrections. Setting goals is only the first step – the key question is how to achieve those goals. It is essential to consider the necessary changes, resources (human, informational, financial), the time required for implementation and the creation of a clear time frame. When it comes to the realization of goals, it is necessary to determine the starting point and then show the weaknesses and strengths in relation to the starting point so that the decision makers recognize what works well and where changes are needed. Without the adoption of a communication strategy (which is predetermined by the Strategic Planning Manual), an action plan and a financial framework for executing the strategy, as well as strengthening the capacity of employees (coordinators), the possibility of missing important information and misinterpreting key messages is possible. The above is evident in the delay in the adoption of the report on progress in the implementation of NDS (adopted on 24.5.2023), as there was also a delay in the drafting of acts that directly support the implementation of NDS 2030<sup>3</sup>. As a result of the above, it follows that the missing resources, which are crucial for implementation, are: “developed skills and capacities for the implementation of the National Development Strategy; hierarchical responsibility of action; developed communication system; IT system for monitoring and reporting on strategy implementation activities” (Ostojić, 2023).

<sup>3</sup> During 2021, a total of 19 long-term and medium-term strategic planning acts of national importance were adopted, and 36 long-term and medium-term strategic planning acts of national importance were drafted, which will directly support the implementation of the development policy and the achievement of the strategic goals of the NDS in 2030 (Government of the Republic of Croatia, 2023).

On the basis of the seven key areas that must be done: 1) aligning the strategy with the NDS; 2) achieving coordination between different bodies (ministries, local and regional self-government units, etc.); 3) adopting a communication strategy; 4) strengthening the capacity of employees working on the implementation of the NDS; 5) defining the hierarchy of responsibilities of structures that implement NDS; 6) defining the reporting system; 7) adoption of a description of the monitoring methodology. Based on the above, the seven key areas that must be done: 1) aligning the strategy with the NDS; 2) achieving coordination between different bodies (ministries, local and regional self-government units, etc.); 3) adopting a communication strategy; 4) strengthening the capacity of employees working on the implementation of the NDS; 5) defining the hierarchy of responsibilities of structures that implement NDS; 6) defining the reporting system; 7) adoption of a description of the monitoring methodology. (Ostojić, 2023)

## 7. CONCLUSION

Strategic planning is a long term process, which results are visible after a certain period. Strategic planning consists of several steps, where the focus of the work is on the steps of monitoring and evaluating strategies. The paper emphasizes the key role of monitoring and evaluation, linking it with education and highlighting the importance of education in the context of strategic planning, as well as the consequences of neglecting education and good communication on the timely realization of strategic goals. In doing so, cooperation, staff capacity and the need for a well-institutionalized and coordinated monitoring and evaluation system are underline. Monitoring, evaluation, education and communication are clearly defined terms in the theoretical part, and are also key elements in the achievement of strategic goals. M&E enable us to gain insight into our achievements and shortcomings, allowing us to adjust the strategy accordingly. In order to be able to implement the above, educated employees who do monitoring and implementation are needed. Therefore, the focus of this paper is the emphasis on education as an essential process required for the development of knowledge and skills that are necessary for the achievement of goals, while communication is essential for the coordination of activities and the exchange of information. As a result of the previously mentioned investment in the knowledge of employees who do strategic planning is in the interest of every organization, that is, the state. The paper also presented the legislative framework of strategic planning, and thus the M&E of strategic documents of Croatia, as the basic framework of the strategic planning system. The research part of the paper refers to the analysis of examples of good practice, where it has been proven through the example of Denmark that only by adopting a clear structure of action for the implementation of the strategic document can the set strategic goals be achieved. The importance of continuous monitoring of strategy implementation is extremely important for timely response. It was confirmed by the example of Denmark *H2: A clear structure and continuous monitoring of the implementation of the strategic document is essential for the achievement of pre-set strategic goals*. Denmark demonstrated the mentioned by changing the institutional framework in order to be able to react more quickly to the achievement of goals. A clear division of responsibilities helps to manage resources, time and energy more effectively. It allows each team member to focus on what they do best, leads to transparency, faster reaction, responsibility and motivation to achieve the goal. Denmark has also shown that changes can only be achieved through the joint efforts of all stakeholders (public authorities, business sector, scientific research sector, public, non-governmental organizations). It showed, through various initiatives, that it is necessary to think about the future through the inclusion of young people in various education programs, and proved *H1: Continuous communication and employee education are the key to making recommendations and successful monitoring indicators*.



Only a clear knowledge of what is being monitored, how it is monitored, and then reporting on it and giving recommendations for further action is a condition for timely reaction and redefinition of strategic goals. Monitoring, evaluation, education and communication are key elements in achieving strategic goals. They provide insight into the achievements and shortcomings and adjust the strategy accordingly, which is what Denmark has done. The successful achievement of strategic goals requires the integration of all the above elements. Organizations that manage to harmonize these elements have a greater chance of successful business and achieving their goals.

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## CONCEPT OF MULTI ATTRIBUTE DECISION AID MODEL

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### ABSTRACT

*In the contemporary business landscape, TIER 1 manufacturing companies face an array of both short-term and long-term adjustments. A crucial determinant of a company's success lies in its ability to flexibly cater to evolving customer demands and swiftly respond to alterations in both external and internal determinants. To effectively navigate these challenges, there is an imperative for comprehensive data analysis, which facilitates the consideration of potential outcomes and fosters efficient decision-making. This manuscript introduces various methodologies designed to bolster supply chain and intra-logistics decisions within companies characterized by a batch production framework. Moreover, it proposes a novel technique aimed at streamlining the decision-making process by refining available options and highlighting only the most viable alternatives for subsequent simulation. The integration of human expertise with advanced computational capabilities engenders optimally tailored decision models. The overarching objective is to minimize reliance on intuition during intra-logistics operations, thereby enhancing precision and reliability. Previous research has illuminated a plethora of strategies to enhance decision-making paradigms. Nevertheless, determining the most fitting decision-making model remains a challenge, especially since a significant proportion of these models are tailored specifically for large-scale enterprises and serial production.*

**Keywords:** *decision support system, multi-attribute decision making, algorithm, comparative analysis*

### 1. INTRODUCTION

The interplay between human and computer interactions has a profound impact on the development of novel technologies and processes. Crucially, a Decision Support System (DSS) necessitates the integration of multi- and interdisciplinary methodologies, including fostering a common linguistic and cognitive framework to address salient topics (Clifton & Frohnsdorff, 2001). Notably, production environments are marked by diverse standards and individual characteristics. Within TIER1 and TIER2 classifications, product portfolios exhibit significant heterogeneity and are subject to frequent modifications. Compounding this complexity is the dynamic nature of customer expectations and the intricate interconnections within production processes (Benferhat & Sossai, 2006). Consequently, Line Feeding (LF) processes lack uniformity, underscoring the importance of flexibility to ensure efficient operations, particularly when faced with unpredictable variables. Essentially, LF serves as the conduit transporting materials from raw material warehouses to their designated utilization points within the production line. The management of production capabilities and resources is a formidable endeavor. Market trends underscore the pivotal role of sustainable and cost-effective logistic processes. Intriguingly, human intuition often supersedes quantitative analysis in LF operational decision-making. Typically, decisions are made based on the starting and demand states without thorough quantitative evaluations.

Drawing from cognitive psychology, case-based reasoning posits that human experts accrue knowledge through exposure to myriad instances within their domain. While these experts can deduce patterns into rules, the individual "case" remains the fundamental knowledge unit (Kahneman, 2012).

## **2. LITERATURE BACKGROUND**

The methodologies employed in decision-making exhibit considerable variation. For Supply Chain Management (SCM) systems to function optimally, they must be agile and capable of oscillating between swift and deliberate judgments. Intriguingly, human cognition often displays intuitive biases, which at times contradict logical decision-making frameworks (Luoma, 2016). One of the most pressing challenges in SCM, LF, and intra-logistics decisions pertains to the paucity or quality of information. The integration of ambiguous information is pivotal in the development of knowledge systems. Current focus on LF challenges encompasses the identification of optimal techniques and parameters for specific contexts. Several studies have extended the conventional mixed-integer programming formulations for LF, proposed heuristic solutions, and ascertained the superiority of commonly employed basic cyclic schedules. Further insights were gleaned into the interplay between LF costs and part attributes, optimal LF strategies for diverse components, and the quest for efficient LF strategies for component-centric processes (Emde & Gendreau, 2017). In light of the prevailing research, while there's no dearth of strategic decision-support algorithms, the mutable logistics landscape accentuates the imperative for more malleable logistic systems. It becomes crucial to discern which algorithms are most appropriate and ascertain which simulations should be employed within the constraints of limited resources. The crux of this research is to formulate a method prioritizing prelimination, tailored to bolster SCM decisions in Small to Medium Enterprises (SMEs) characterized by low-volume batch production structures. The synergy of human cognition and algorithmic prowess can cultivate decision models that diminish reliance on intuition during SCM processes, optimizing the decision-making paradigm in intra-logistics operations (Kumar & Sharma, 2021). According to Chen, Liu, & Xu (2021), human knowledge significantly contributes to enhancing data-driven decision-making methods. Intriguingly, such knowledge is often conveyed qualitatively rather than numerically (p. 162). Human decision-making predominantly involves qualitative reasoning, making it more intuitive for methods to address qualitative information directly rather than resorting to numerical approximations that might result in data loss. Benferhat & Sossai (2006) posits that integrating uncertain information from diverse sources remains a pivotal challenge. Establishing a logical connection between data or representing them numerically is not a straightforward endeavor. They emphasize the necessity of an algebraic structure to compute coherent functions and underscore that the initiation of any algorithmic procedure necessitates choosing the correct structure for qualitative data representation (p. 89). Both Benferhat & Sossai (2006) and Chen, Liu, & Xu (2021) concur on the approach of merging information, stressing the importance of combining all data consistently, commencing with the integration of possibilistic knowledge bases, and subsequently applying the acquired facts. My research gravitates towards Supply Chain Management (SCM) processes. Izunildo, Grilo, & Cruz-Machado (2012) notes the paramountcy of sustainable SCM and intra-logistics in contemporary business milieus, highlighting that competition has shifted from companies to supply chains. The tripartite dimensions of sustainable manufacturing encompass environmental, economic, and social facets, each demanding a plethora of decisions. Supporting these challenging decisions necessitates a robust and pertinent Decision Support System (DSS). As examined by Teniwuta & Hasyima (2020) a well-structured DSS, emerging from contemporary trends, could be instrumental in surmounting significant supply chain hurdles.

This tool is tailored to bolster decision-makers in optimizing alternatives, thereby enhancing productivity, profitability, and customer satisfaction. Consensus among experts suggests that supply chain decisions underpin manufacturing industry sustainability and success. Though there are myriad techniques to bolster decision-making processes, such as analytical algorithms and algebraic methods, they often require considerable resources for exhaustive solution evaluations.

### 3. COMPLEXITY OF DECISION MAKING

The complexity of decision-making within the industrial sector has grown exponentially due to the myriad factors influencing processes. Consequently, there is an expanded array of possible approaches to these processes. The following chapters introduce our strategic decision pre-elimination concept, expound upon line feeding processes and decision points, and delineate our digital twin-powered pre-elimination process through six distinct steps: detect, identify potential variants, pre-eliminate, simulate, select, and react. It is imperative to ascertain the origin of any deviation and meticulously explore all possible solutions to identify the optimal fit. The primary objective is to streamline the possibilities to a manageable volume for a digital twin, thereby facilitating timely decision-making at a strategic level. In the Line Feeding (LF) system, the plethora of factors often surpasses an individual's capacity to decide with requisite precision. Ideally, individuals would recognize variances from the optimal operation based on real-time Key Performance Indicators (KPIs) and subsequently predict potential repercussions. From preliminary analyses and existing data, the top 3-5 variants are earmarked for simulation in the digital twin, ensuring the selection of processes best suited for any evolving situations. This holistic approach aids LF operations by semi-automatically adjusting to current situations and shifting process attributes, maintaining operational efficiency without the need for new algorithmic or system modifications. While this paper predominantly emphasizes line feeding process definition, it is vital to provide an overview of the entire concept. The strategic intra-logistics decision pre-elimination concept consists of three interconnected modules:

- **Line and Line Feeding Capacity Management (LLFCM):** The LLFCM module aims to oversee the capacities of various resources, encompassing production lines, human resources, logistics equipment, and warehouse capabilities. It articulates production line buffering strategies, warehousing preparation, LF processes, routing plans, and material handling departure rules, among other key facets. (Baller et al., 2020)
- **Location Assignment Problem (LAP):** In the initial tactical design phase, LAP is tasked with designating one or more logistic resources (e.g., fork-lift-trucks or tow trains) from a vehicle pool to specific warehouse pick-up sites and production line buffers. A strict assignment denotes that a single vehicle oversees a location. In contrast, a flexible allocation, where multiple vehicles are allocated to a location, relies on the Tow Train Scheduling and Loading (TTSL) algorithm to determine vehicle assignment based on task priority. The LAP and TTSL together uphold efficiency, outclassing traditionally utilized simple cyclic plans. LAP evaluates various vehicle and location pairings, considering vehicle attributes, material handling tasks, location features, and routing networks. Allocation combinations undergo computer simulation analyses integrating diverse LF processes and the TTSL algorithm. The LAP also stipulates assignment flexibility degrees, recognizing that while increased flexibility enhances TTSL's efficiency, it may be less intuitive for human operators. (Milisavljevic-Syed et al., 2020)
- **Tow Train Scheduling and Loading (TTSL):** Operating at an operational tier, the TTSL algorithm assigns and schedules specific material handling tasks for vehicles, factoring in the appropriate material handling method, LAP's location-vehicle designations, and open material handling tasks.

The algorithm delegates tasks based on LAP's prioritization, and TTSL produces detailed vehicle schedules, inclusive of content order, commencement times, operational protocols, and projected completion times. (Besharati-Foumani, Lohtander, & Varis, 2019)

The preliminary outcomes of my research, thus far, are largely derived from a comprehensive examination of the extant literature in the field. In essence, I have undertaken an extensive review of various decision support systems and algorithms, the crux of which focuses on supply chain management decisions. Notably, only a handful exhibit the capacity to concurrently function within the intra-logistics milieu. A salient observation from this review is that decision support systems deploy a plethora of algorithms. A significant proportion of these algorithms pivot on relative variables, characterized as high, low, or less risk. This insight was gleaned from a thorough understanding of the operational nuances of these decision support systems. Conversely, simulation programs demonstrate an adeptness at grappling with explicit contexts and variables. This intrinsic capability empowers them to yield more precise insights about the ramifications of specific actions. However, there's a caveat: the meticulous execution of accurate simulations and the crafting of bespoke models for individual situations necessitate a considerable allocation of both temporal and material resources. My investigative endeavors have underscored a strategy to circumvent this constraint. By narrowing down the potential outcomes through the application of a decision support system or a specific algorithm, there's a tangible conservation of both time and resources. This is operationalized by the strategic focus on only those scenarios earmarked for the simulation model, subsequently curtailing the developmental overhead for the simulation paradigm.

#### **4. PROBLEM SCOPE**

The intricate integration of these modules ascertains streamlined operations, optimizes decision-making processes, and enhances overall efficiency in the industrial sector. Logistical sectors and operations are intricately linked, emphasizing the importance of harmonizing interconnected processes (Sali & Sahin, 2016). The strategic line feeding process, for instance, involves coordination across multiple departments and areas. Ensuring efficient replenishment of order picking positions, tailoring the order picking procedure, and preparing LF units in raw material or part warehouses are crucial to optimizing the line feeding process. This process, in essence, should be conceptualized within the context of the overall logistics system's efficiency. Factors such as part supply from warehouses, material handling between production lines, and handling of (semi-)finished goods need to be coordinated. Furthermore, operations in the finished goods warehouse should consider applied production goals, be it for long-term storage or as a buffer for imminent transport. Operations ranging from client demand forecasting, production planning, procurement, to machine maintenance, all influence the system's performance. This section, therefore, seeks to elucidate potential opportunities and influential conditions in the primary strategic LF decision-making domains. (Phuyal, Bista, & Bista, 2020) Buffering, in contemporary production settings, has emerged as a costly and nuanced concern. A production line, while determining whether to produce for its buffer or directly for orders, grapples with the pervasive push/pull conundrum. This decision impacts numerous factory departments including quality assurance, production, and maintenance. The repercussions of these decisions are evident in production schedules and batch sizes. Ideally, with suitable order characteristics and buffer capacities, stockpiling can minimize the unit loads handled, introducing flexibility in material handling schedules. However, diminished buffer capacities can lead to challenges such as reduced material processing time frames and heightened schedule intricacies. Notably, buffering facilitates two-step material handling with interim stockpiling, optimizing the coordination of material handling personnel or robots and mitigating traffic congestion.

The interplay between the production LF process and warehouse preparation, especially under diverse conditions, adds layers of complexity to decision-making (Caputo, Pelagagge, & Salini, 2016). Shifting and periodically revised consumer demands significantly influence LF processes due to their inherent characteristics. For instance, the diversity and volume of product variants directly impact the inventory of parts on the production line. In environments like TIER1 and TIER2, it is less common to find substantial unit load stocks and infrequent material handling, which are characteristics of large batch sizes of limited product variants. Conversely, smaller batches with a vast array of product variants necessitate heterogeneous unit loads and regular line feeding. Given these variables, the choice between the LF process, Decision Support Systems (DSS) algorithms, simulation algorithms, and other characteristic features becomes pivotal to ensure operational equilibrium, especially when production plan features are susceptible to change (Maximilian, Pechmann, & Nunes, 2019). As posited by Dörfler (2022), AI cannot make strategy, neither any other algorithms as I added to that. But it is a strategic question whether, for what and how we use them. It can be a useful tool if we use them well, at the same time, it can be a disaster for the company if we use them wrong. Do not think of AI (or DSS, algorithms) makes us smarter, they just amplify what we have got. From both theoretical and practical standpoints, the interaction between humans and computers is pivotal when designing new processes and technologies. Effective decision support systems (DSS) necessitate multifaceted and interdisciplinary strategies, including the cultivation of a shared lexicon and a unified approach to addressing the pertinent challenges (Chen et al., 2021; Benferhat & Sossai, 2006; Izunildo et al., 2012). Specifically, within a TIER1 manufacturing context, characterized by a mixed product portfolio and batch production, product offerings are heterogeneous. Such portfolios are marked by their diversity and propensity for frequent alterations. Furthermore, customer demands have evolved to be more sporadic and less foreseeable than in previous eras. Moreover, the various phases of production are deeply interconnected, each dependent on the others. Given the prevailing market dynamics, it is imperative to institute both environmentally conscious and economically feasible logistical procedures. This production milieu is replete with myriad distinct standards and attributes. Consequently, line feeding processes lack uniformity, necessitating adaptability to navigate the escalating unpredictability factors inherent in these settings. Configuring the determinants for a DSS or simulation tool presents a formidable challenge. To address this, experts lean towards an integrated approach, harnessing the capabilities of digital twins in tandem with DSS.

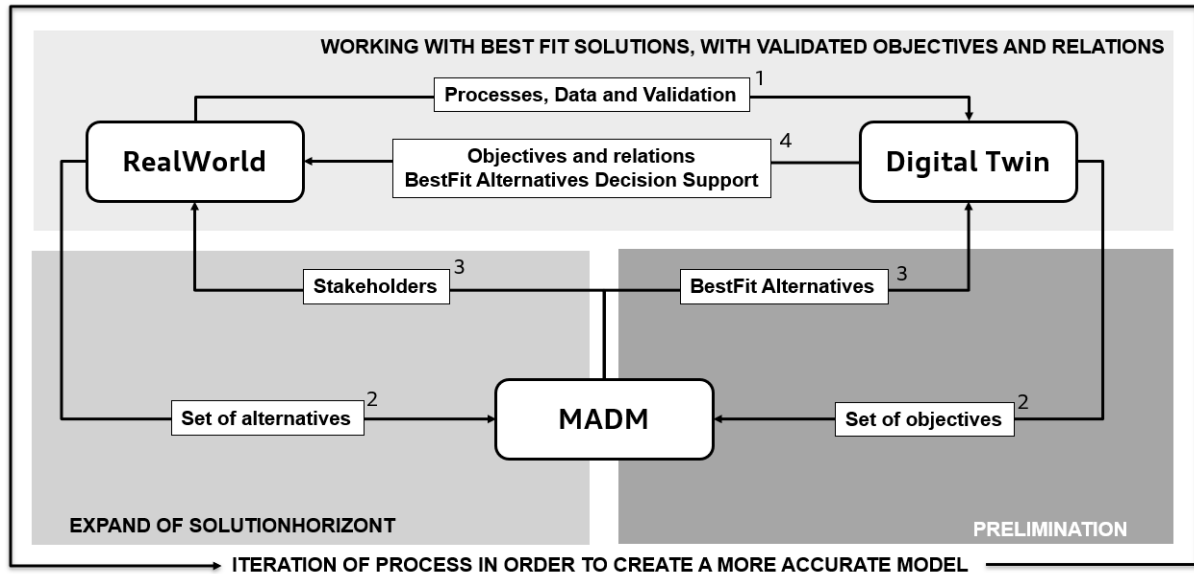
## 5. METHOD

In the realm of supply chain management, devising an optimal strategy to assist TIER1 suppliers—particularly those operating within a small-volume batch production framework—is a challenge I am committed to addressing. Specifically, my focus centers on the enhancement of preliminary decision-making, often termed 'prelimination,' within their intra-logistics operations. Recognizing the challenges posed by the initial scenarios, there exists an opportunity to design algorithms that facilitate more informed decision-making. To this end, I advocate for a synergistic human-machine approach in crafting decision models pertinent to both supply chain planning and operational processes. Such a collaborative model not only reduces reliance on purely intuitive strategies but also paves the way for more efficacious decision-making tailored to intralogistics situations. To materialize this vision, I propose the creation of a simulation-based decision support tool, anchored in the simulation program, for example Siemens Plant Simulation, and supplemented by algebraic methodologies such as the Multi-Attribute Decision Method (MADM) for the preliminary phase. This confluence of techniques will be instrumental in articulating the essential objectives and system interrelations rooted in real-world scenarios. I have christened this model the MADAM (Multi-Attribute Decision Aid Model).

A live implementation and subsequent evaluations in real business environments are envisioned. It is pertinent to note that the modernization of infrastructures, inclusive of the deployment of sensors to garner a plethora of data, necessitates significant financial investments by enterprises. Over the forthcoming time, my research endeavors will center on the validation of the digital twin model via quantitative methodologies. A pivotal component of this validation involves the assessment of the model's efficacy by leveraging key performance indicators (KPIs) sourced from the production system and organizational data. In a bid to achieve a more nuanced understanding of decision-making. As the research trajectory unfolds, there's an envisaged augmentation of the model's algebraic dimension, entailing the creation of an attribute-rule map and the judicious selection of algorithms tailored for the prelimination process. The overarching aspiration is to crystallize a robust digital twin model, potent in optimizing production systems and refining decision-making paradigms. In the domain of scholarly communication, the fruits of this research will be propagated via an array of mediums, encompassing reputable scientific journals and conference presentations. Ultimately, this endeavor seeks to enrich the academic corpus relating to digital twin modeling and underscore its pragmatic implications. To encapsulate the milestones achieved: a rigorous literature review has been consummated, the digital twin model has been operationalized and validated, a comprehensive list of attributes has been collated, and strides have been made towards the formulation of a rule-map. The decision support framework described herein melds observations from the real world with digital simulations to ascertain the most effective solutions. This fusion is critical in fields where the understanding and management of complex systems are paramount, such as engineering, environmental planning, and business strategy. The essence of this framework is the 'Digital Twin,' a digital representation of a physical system or process. This concept enables comprehensive testing, simulation, and validation of various scenarios, mitigating the risks and costs associated with physical experimentation. The cyclical operation of this framework initiates with gathering and confirming real-world data and processes. Such data serves to craft and hone the digital twin, subsequently aiding in the selection of 'BestFit Alternatives' for informed decision-making. Analysts then evaluate these alternatives against defined objectives to confirm their efficacy in achieving the intended results. Stakeholders' contributions are vital within this framework. Their insights and preferences influence the decision-making continuum, ensuring solutions are both technically sound and congruent with stakeholder aspirations. 'Multi-Attribute Decision Making' (MADM) stands as a pivotal component of this methodology. It employs a systematic approach to evaluate multiple criteria concurrently, which is crucial when addressing complex systems with decisions that bear extensive implications. The diagram's numbered arrows delineate a stepwise sequence, signifying an iterative process. Embedded feedback loops in the framework promote perpetual refinement and adjustment of solutions in response to emergent data or shifting objectives and conditions. Furthermore, the diagram delineates two distinct phases: 'Expansion of Solution Horizon' and 'Prelimination.' The former widens the spectrum of potential solutions to enable an exhaustive search for alternatives, while the latter concentrates on whittling down these alternatives to the most viable based on pre-established objectives. This methodology advocates for a dynamic and adaptable problem-solving strategy, immensely beneficial in our current era characterized by swift changes and a wealth of data. It highlights the necessity of integrating technological prowess with human insight to forge robust and enduring solutions.

*Picture following on the next page*





Picture 1: The Concept of MADAM

The proposed methodology for strategic decision-making is intricate, encompassing processes such as prelamination and attribute selection. These processes address various line feeding actions and pivotal decision junctures. Central to this method is the aspiration to enhance decision-making, achieved through a six-step iterative procedure powered by digital twin technology. These steps are: detection, variant identification, preliminary screening, simulation, selection, and reaction. A distinguishing facet of this framework lies in its iterative interplay between the digital twin and real-world scenarios, elucidating the relationships between various attributes. This interaction facilitates the development of a more refined rule map tailored for the decision support system, thereby bolstering the precision of decisions made. An indispensable aspect of the method is its dependence on real-time monitoring of key performance indicators. Such monitoring is pivotal for discerning shifts in circumstances and deviations from optimal operations. With this system, decision-makers can swiftly pinpoint potential challenges and devise strategies to alleviate their repercussions. To forecast the ramifications of specific decisions accurately, it's imperative for the framework to thoroughly assess every potential outcome. This is accomplished through an algebraic approach that discerns all possible attribute combinations. Subsequently, the foremost three to five variants are earmarked for simulation within the digital twin. Such simulations empower decision-makers to prescribe apt strategies for emerging situations.

## 6. CONCLUSION

This comprehensive research study on a decision support framework that integrates real-world observations with digital simulations to identify optimal solutions in the context of Supply Chain Management (SCM), particularly addressing the complexities of Line Feeding (LF) processes. The research highlights the importance of a multi-disciplinary approach, the integration of multi-attribute decision-making (MADM), and the pivotal role of stakeholders in the decision-making process. The study recognizes the dynamic nature of production environments, marked by the heterogeneity of product portfolios within TIER1 and TIER2 classifications, as well as the changing nature of customer expectations. It points out the reliance on human intuition in operational decision-making in LF, despite the significant role of quantitative analysis in these decisions. This aspect is underpinned by cognitive psychology and case-based reasoning, which suggest that human experts develop knowledge through exposure to various instances in their domain.

The methodology for decision-making in SCM systems is examined, noting the need for agility and the ability to toggle between fast and deliberate judgments. The challenges of integrating ambiguous information and the importance of synthesizing knowledge from various sources are discussed, emphasizing the role of mathematical models, simulation analyses, and other analytical tools in enhancing decision-making efficacy. The research further explores the trends of Industry 4.0, the skill gaps that need to be addressed, and the role of intelligent solutions in augmenting decision-making efficacy and adaptability. The challenges and prospects of smart manufacturing, the IoT-SCM system, and a lightly AI approach was also mentioned. The current focus on LF challenges includes identifying optimal techniques and parameters for specific contexts. The research discusses extending conventional mixed-integer programming formulations for LF, proposing heuristic solutions, and investigating the interplay between LF costs and part attributes. It calls for more flexible logistic systems in the face of a mutable logistics landscape and stresses the importance of discerning which algorithms and simulations are most appropriate within the constraints of limited resources. The crux of the research is to develop a method that prioritizes preelimination to support SCM decisions in Small to Medium Enterprises (SMEs) with low-volume batch production structures. It emphasizes the synergy of human cognition and algorithmic precision in cultivating decision models that minimize reliance on intuition during SCM processes, thereby optimizing the decision-making paradigm in intra-logistics operations. The paper notes the significant contribution of human knowledge to enhancing data-driven decision-making methods and the challenges of integrating uncertain information from diverse sources. The research proposes a lattice-valued logic system for qualitative data representation and stresses the importance of combining all data consistently. Finally, the research aims to validate the digital twin model through quantitative methodologies, assess the model's efficacy using key performance indicators (KPIs), and incorporate the pair comparison questionnaire to understand decision-making attributes. It anticipates the augmentation of the model's algebraic dimension and the selection of algorithms tailored for the preelimination process, with the ultimate goal of optimizing production systems and refining decision-making paradigms.

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## COMPANY VALUATION IN THE ASPECT OF HUMAN RESOURCES

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### **ABSTRACT**

*The main aim of compiling my paper is to research how human contribution can be measured and quantified in the company value from various aspects. This effort of mine is complemented with the verification that a human - being as an especially unique resource -can contribute to the formation and change of the company value at the company he works for at a significant and detectable extent. In my view, human resource represents all the human-related free cash flow arising in the future with the co-operation of humans and the company value, which may be specified based on the discount rate related to such.*

**Keywords:** *Company valuation, Discounted free cash flow, Human resource value*

### **1. INTRODUCTION**

In the past decades significant changes in the economic structure affecting business associations have been witnessed. More and more signs reveal that methods having been applied so far and practices interiorised by professional experts do not work effectively any longer. „A new corporate type has emerged, the knowledge company from which the traditional tangible fixed assets as decisive capital elements have disappeared”. (Boda, 2008, p.7). At the knowledge-based companies most of the employees are highly qualified and well-educated experts, therefore they are knowledge workers. The majority of their work consists of transforming information into knowledge, mainly using their own competencies, but sometimes with the help of information suppliers or those providing special knowledge. These companies possess few tangible assets. Their immaterial assets are far more valuable than their material ones” (Sveiby, 2001, p.75). Hand (2003, in: Baruch and Hand, 2003) argues that a growing number of business people and economists are advocating that intangibles will have an increasingly significant role over time. They are now playing an even more vital role in value creation, because if the investment in intangibles is successful, it can enable the firm to achieve greater profitability and returns to scale. Clausen and Hirth (Clausen and Hirth, 2016) have developed a new earnings-based measure for the value of intangibles that can gauge the productivity of already existing intangibles. Their new measure serves as an additional factor to explain company value. As they write in their article "For example, Corrado et al. (2009) state that only 8% of economic growth can be attributed to the traditional 'bricks and mortar' capital investment. According to Nakamura (2010), intangible investment expenditures have risen from roughly 4% of U.S. GDP in 1977 to 9-10% in 2006. Despite their importance, intangibles are often omitted from studies in empirical Corporate Finance." Certainly, these changes have not left the field of company valuation unaltered either. Among the unanswered questions one of the most emphasised one is the explanation of differences between market value and book value. In my paper I shall apply the definition of company value published by Copeland, Koller and Murrin (1999), since this is the closest to the research methodology wished to be introduced later on: „The value of a company embodies all the earnings (free cash flow), the business association realises with its business activity in the long-run through its entire lifecycle, which is available for shareholders providing funds for the enterprise.” (Copeland, Koller and Murrin, 1999, p.18) „Free cash flow (FCF) is a company’s true operating cash flow. It is the after-tax cash flow generated by the company and available to all providers of the company’s capital, both creditors and shareholders. Free cash flow equals ordinary operating cash flow after all adjustments, including all categories of depreciation, amortization, and tax payments, minus

new investment into tangible assets and other assets, but excluding any debt payments and prior to any cash received from new loans.”(Copeland, Koller and Murrin, 1999, p. 168). (This interpretation must be supplemented with the following: cash flow realised in the course of the business activity of the company has to be discounted in order to receive the value of the company.) „The discount rate applied for free cash flow must reflect the alternative costs of each shareholder’s funds in the proportion of their relative contribution to the total funds. This is called weighted average cost of capital - WACC” (Copeland, Koller and Murrin, 1999, p. 169). The main aim of compiling my paper is to research how human contribution can be measured and quantified in the company value from various aspects. This effort of mine is complemented with the verification that a human - being as an especially unique resource -can contribute to the formation and change of the company value at the company he works for at a significant and detectable extent. In my view, human resource represents all the human-related free cash flow arising in the future with the co-operation of humans and the company value which may be specified based on the discount rate related to such. I have set a rather challenging task to myself when selecting the research topic focusing on the definition of the human-related company value. The complexity lies in the adequate management of humans as complicated and special resources, on the other hand that the theme is located in an interdisciplinary field.

## **2. MEASUREMENT OF HUMAN VALUE: EXISTING APPROACHES**

Research on measuring human value dates back to the 1960s. While in the beginning, the idea was to measure the value of people in the same way as the value of assets (Hekiman and Curtis 1967), McCowen (1968) and thus to reduce human beings to assets and balance sheet footings, later we arrived at time-based measurement Standfield (2002), which is based on measuring the time required for human activities. In a different approach, they tried to measure it in terms of replacement value (Likert, 1967) (how much it would cost the company to achieve its current level of value creation if tomorrow morning it had no employees and had to rebuild its activities from scratch), attempting to take account of each 'key person', as a discount factor in Osteryoung and Newman (1994) and (Pratt, 2001). Nevertheless, human capital indices (Watson Wyatt, 2002) and intellectual capital scales (Sveiby, 2001 and Austrian Research Center Report, 1999) have also been used to measure human value. Attempts have also been made to define intellectual capital as the difference between the market and book value of a company (Edvinson and Malone 1997, and Sveiby, 2001) and to capitalise expenditure on employee training (Damodaran, 2006). In addition, efforts have been made to interpret it either as a human asset multiplier (Giles and Robinson, 1972) or as a human capital investment and to account for its future value effects from publicly disclosed personnel expenses (PE) (Regier and Rounen, 2023). Apart from replacement value and the difference between market and book value, the above methods measure human value, but not in terms of company value.

## **3. HUMAN FREE CASH FLOW (HFCF) MODEL**

According to my starting viewpoint the overwhelming majority of companies would not work, create value without the people, employees working for them, therefore there must be a part of company value which can be directly related to human resources. To define this human resource value, free cash flow and its factors listed in Table 1 will have to be broken down by elements requiring human contribution (HFCF) and not-requiring human contribution – that is automatic (AFCF) elements in my interpretation. Consequently, there must exist principles with the help of which – applying them systematically – the break-down may be performed. When breaking down cash flow I use a process-based approach, similarly to Standfield’s (2002) immaterial map analysis, whose aim is to become familiar with the creation of value within the organisation through dividing them into processes.

To derive from the above, total free cash flow of the company partly consists of cash flow generated by the employees, that is (HFCF), partly from automatic cash flow not requiring human contribution (AFCF). The amount of these cash flows divided by the discount factors ( $WACC_H$  and  $WACC_A$ ) for human and automatic cash flow results in the total value of the company. This Human Free Cash Flow Model applied by me to quantify human resource value can be described with the following formula (1):

$$Company - value = \sum_{t=1}^n \frac{HFCF_t}{(1 + WACC_H)^t} + \sum_{t=1}^n \frac{AFCF_t}{(1 + WACC_A)^t} \quad (1)$$

To my mind, summing up human and automatic company value elements adds up to the company value. The fact that discounted cash flow related to automatic and human contribution can be added up partly follows from that I add up elements emerging due to breaking down the previously specified free cash flow and on the other hand I apply the present statement by Damodaran (2006) „One of the major advantages of valuation based on discounted cash flow, is that the company's cash flow may be divided into various cash flows, and even if we value these separately the value of the company will not change.” (Damodaran, 2006, p.448). Certainly, the two parts of company value the automatic and the human resource value may differ significantly by branches of industry, or even by companies.

### 3.1. The essence of Human Free Cash Flow Model

Applying the following 3 principles „Contribution principle”, „Human related principle” and „Chronology principle” consistently the cash flow factors listed in Table 1 may be divided into human contribution related and automatic (also emerging without human presence) elements.

The above mentioned three principles can be explained in the following manner:

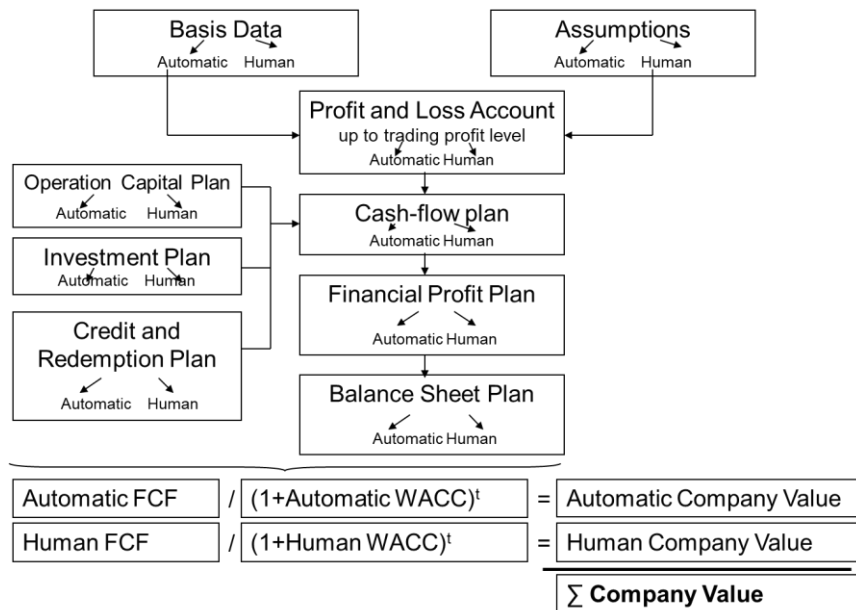
- „Contribution principle”: I see processes automatically occurring within the company as a row of dominoes which only fall due to an effect or somebody's co-operation. This contributive effect is generated by individual employees who initiate, stop, put into motion, invent, vivify, and connect automatic processes related to which decisions are made. The dominoes keep slanting until the processes within the company are automatic and these automotive processes produce automatic cash flow factors. When human contribution is needed the row of dominoes comes to a halt. Accordingly, cash flow factors emerging in the course of human contribution connecting the rows of domino are factors of human cash flow.
- „Human related principle”: Let us suppose that any income and expenses which are fundamentally necessary and automatic for the operation of the company (these are usually specified in a contract), which would become due even if all of a sudden every employee disappeared from the company or vice versa everything should be available so as the employees could arrive at any minute and could start work.
- „Chronology principle”: If something had happened before our valuation was started and this happening would go on in the future without human intervention, cash flow emerging like that will be considered as automatic cash flow too.

*Table following on the next page*

+Net sales	- Tax payment in cash after EBIT
+/- Capitalised value of own performance	= <b>Net Operating Profit Less Adjusted Taxes (NOPLAT)</b>
+ Other income	+ Amortisation
- Material type costs	= <b>Gross cash flow</b>
- Wages	- Investment costs
- Depreciation	(+/-) Change of operating capital (Operating capital = Stocks + Debtors + Securities – Creditors)
- Other expenses	- Net change of other assets
= <b>Earnings before interest and taxes (EBIT)</b>	= <b>Gross investment</b>
(to be continued in the next column)	= <b>Operating free cash flow</b>

*Table 1: Free Cash Flow Factors are summarized  
(Source: Adapted Copeland, Koller and Murrin 1999, p.169)*

With regard to the fact that free cash flow may be derived from these factors, cash flow may be divided into human and automatic cash flow. This divisible feature similarly applies to the profit, cash flow, operating capital, investment, financing, and balance sheet plan. This divisible feature is demonstrated by Figure 1:



*Figure 1: Structure and Operation Scheme of the Excel-based company valuation model  
(Source: Own composition)*

When defining the company value an adequate discount factor may be assigned to human and automatic free cash flows, this way the value of human resource can be defined, demonstrated, and quantified. A certain part of company value which is uniquely determined for the subject company - starting from a date selected at each company, analysing the processes going on at the company with the discounted cash flow method – can be directly related to employees (working within or for the company) namely there is a value generated exclusively by humans which can be detected and calculated within the company value – the human resource value. The Human Free Cash Flow Model worked out by me is suitable to define this value.

### 3.2. Presentation of the Human Free Cash Flow (HFCF) model through the example of a service company

Let us envisage a service company that makes investments on behalf of its customers and enters into long-term service contracts with its customers. Under the contract, customers pay a fixed fee that covers the costs of the investment incurred by the company, the costs of operating and maintaining the invested asset and the costs incurred by the company. The other charge in the contract is a consumption-based charge to cover the costs of operating the asset (i.e. a form of consumption-based charge.) The customer therefore purchases an asset from the company as a service. The advantage of this cooperation is that the customer does not have to invest and it is possible that the equipment provided by the company is more efficient than his previous equipment, thus saving costs and energy. The company realises a profit by building it into the contractually fixed tariffs. From the duration of the contracts signed so far and the company's sales plans, we can map the company's future plans and their economic impact. Thus, the breakdown I propose can be done not only for the starting year but also for the plan years. The company enters into contracts with its customers, provides equipment tailored to the customers' needs, makes investment decisions, but subcontracts the operation of the invested equipment. We can build the Human Free Cash Flow model from a given point in time in advance. I will give a not exhaustive set of examples for breakdown in Figure 1.

#### 3.2.1. Logic of the breakdown of cash flow elements

##### I. Incomes

Title	Reasoning
Income from activities outsourced to subcontractors specified in contracts prior to the year serving as a starting date	These incomes occur in the Profit and Loss Account of the company without any intervention (if we assigned an external auditing company with the invoicing of already concluded transactions). (Chronology principle)
Consumption-based tariffs for project contracts concluded in the year used as a starting date and subsequent years.	The Company carries out an investment or have an investment carried out in the course of its activity, for which it concludes all the contracts necessary for its operation, but the time for which the equipment is in operation is determined by the consumer's habits/demands, and therefore the Company's employees have no control over it after the equipment is ready, and it can be considered as an automatic element (Intermediary principle).

*Table 2: Automatic incomes which would occur even without human contribution in the starting year or later*

*(Source: Own composition)*

Title	Reasoning
Fix fee of project contracts concluded in the year serving as a starting date and the following years	I assume it is a guiding principle: without human contribution contracts may not be concluded in the selected business association (Contribution principle)

*Table 3: Human incomes which explicitly occur with human (employee's) contribution in the starting year or later*

*(Source: Own composition)*



## II. Expenses

Title	Reasoning
Office block rental	The company in subject needs an office suitable for people working for the company, from which the business activities are performed. (Human related principle)
Subcontractors' fee specified in a contract prior to the year serving as a starting date	These fees (and presumably the income from subcontracted activities) occur in the Profit and Loss Account of the Company without any intervention (if we assign an external accounting company to invoice concluded transactions). (Chronology principle)
Software hire	The Company also hires the software necessary for its operation, therefore their fees occur without human contribution too (Human related principle)
Accounting	Accounting duties of the Company are carried out by an external company. These are listed in this group, because if a company does not have any activities, tax report must be submitted anyway, furthermore incomes and expenses also arise from the contracts of the earlier years without human presence. (Human related principle)

*Table 4: Automatic expenses required for basic operation which would occur even without human contribution in the starting year or later  
(Source: Own composition)*

Title	Reasoning
Office water fee	Water costs do not originate from the mere existence of the office and its suitability to host people. It only occurs from the arrival of employees. (Human related principle)
Repair, maintenance of vehicle, office equipment	These expenses would not occur, if the assets were not used by people, this is why these are included in this group. (Human related principle)
Travel, exhibition, marketing, advertising, commercial, work wear, post office, phone, internet and fax fees, expenses	These are also expenses related to the presence of humans. Certainly, phone base fee does not belong to this group. (Contribution principle)

*Table 5: Human expenses which arise explicitly by human (employees') contribution in the starting year or later  
(Source: Own composition)*

Title	Reasoning
II.C.1. Bank costs II.C.2. Trading tax	Since these expenses arise through the operation of the company as a whole, I propose that those expenses should be divided in the proportion of the income broken down in accordance with the above.

*Table 6: In my view the following expenses may be divided exclusively in the proportion of the above  
(Source: Own composition)*

By applying the above principles consistently, each line of the profit and loss account can be classified into automatic and human elements. Taking into account that the company enters into long-term contracts, this breakdown and the elements of the profit and loss account can be projected into the future until the end of the term of the contracts concluded. Further on, should it be possible to separate incomes and expenses to automatic and human elements, using these, debtor's and creditor's turning days as well as VAT payment principles we could identify

periodic debtor's, creditor's balances and other receivables and liabilities from which operating capital<sup>1</sup> is built up. The changes of individual operating capital stock elements will result in the changes of operating capital line the cash flow plan. At the preparation of the investment plan I apply the basic Principle of Chronology detailed above. All the investments having been decided before the starting date of the analysis are considered as automatic cash flow elements, every other investment can only be the result of human contribution and assistance, this way those will be parts of human cash flow. Office furniture hardly ever makes a decision on wanting a new computer or a larger desk. Following the same track, a credit plan, a redemption plan, and plan for interests payable can be set up. It is also true that items having been decided on prior to before the starting date of the analysis will be elements of the automatic cash flow, while credits drawn up in the starting year of the analysis or afterwards, furthermore provision of funds are human cash flow elements related to the employees. If we are able to break down the profit and loss account plan projected for the future (for the duration of contracts) and the above three part-plans, the automatic and human cash flow plan is almost ready. The word 'almost' refers to the fact, that after entering basic figures of the cash flow plan profit from financial transactions are received which also takes interest payable after credit or interests receivable after financial assets at our bank account into consideration. Simultaneously with the completion of the cash flow plan the Profit and Loss Account plan is finalised as well. As a total of the above plans the balance sheet plan evolves as a synthesising chart. The compulsory existence of accounting equations will reveal the mistakes made.

### *3.2.2. The appropriate discount factor*

If free cash flow elements are available in the appropriate breakdown, applying the discount factor based on the appropriate weighted capital costs the company value may be defined, in addition we will be able to separate it into automatic and human values. Certainly, the question occurs whether we should not apply different discount factors for automatic and human elements. This is quite natural since on the score of the above automatic elements are foreseeable thus much safer than human elements. If we look at risks originating from the employees' migration, illness or death, lower success rate than planned – in my view – higher discount factors should be used for human elements. Owing to the above, I see that the weighted capital costs varying in beta factor should be applied for automatic and human free cash flow elements. On the strength of the concept described in Key Employee Discount (Pratt, 2001) the key employee discount could be 10-25%. When assuming a 1.25 beta factor for automatic elements with lower risk for the company, it needs to be increased by 17.5% at human elements with higher risks. Thus, with the same basic parameters, we get 2 WACC. One to discount the automatic and one to discount the human cash factors. The value of the cash flows separated into the automatic and human elements, discounted to the present by the associated discounted factor, gives the company value we are looking for, broken down into two elements. Thus, using the above method the automatic and human values can be determined within the company value for any company.

## **4. THE HUMAN VALUE FUNCTION**

In my paper the theoretical outline of the human value function is included rather as a vision, or as a new field of research to be extended further on. As a starting point I have collected factors influencing performance from the work of various authors, filtered them with a survey conducted among business leaders and university students, thus I used the remaining factors to constitute the theoretic principles of the human value function.

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<sup>1</sup> The company I chose is not a production and trading company, does not have stocks, consequently those are not covered by my analysis. However, stocks could be defined on the basis of stock turnover days.

Even when I selected the topic for the paper I assumed that in theory a human value function may be attributed to each person, and this function apart from taking synergy effects forming among individual people into account, it defines the contribution of individual employee's performance to the company value generated via human contribution.

The above concept (vision) may be described with the following (2) formulas:

$$V = AV + HV \quad (2)$$

where: V= Company Value

AV= Automatic part of company value (without human interaction)

HV= Part of company value generated via human contribution

In my view, company value consists of two elements (regardless of the method used for calculation). One of them is the automatically generated part (without human intervention) (AV), while the other one is the element generated via human contribution (HV). The focal point of my research is the part of the company value generated by human contribution; therefore I will investigate it in more details below (3):

$$HV = \sum_1^t f(EE_t) + \alpha \sum_1^n \gamma_n * f(HP_n) + \varepsilon \quad (3)$$

where:  $EE_t$ = t-th external effect (effect may not be influenced by company employees)

$HP_n$ = n-the employee's performance at workplace

$\gamma_n$ = n-th employee's success factor, it shows what influence the change of the subject employee's own performance has on the formation of the company value generated via human contribution

$\alpha$ = Synergy factor ( $\alpha > 0$ ) The synergy factor of teams formed by individual employees - the extent how much the team performance is higher ( $\alpha > 1$ ) or lower ( $0 < \alpha < 1$ ) than the total performance of individuals.

$\varepsilon$  = Random chance factor

The part of company value generated by human contribution (4) evolves as a result of three factors, one of them is the totality of functions related to external (not affected by the company employees) effects (e.g. changes of inflation rate, price of raw materials, appearance of new market participants). The other factor is the totality of individual human performance functions adjusted with individual success factors and synergy effects. While the third indispensable essential factor is the role of random chance (from human approach we can think of the "explaining" factor when the individual was at the good place at the due time).

$$HP_n = f(a_n; b_n; \dots q_n) \quad (4)$$

where:  $a_n$ - $q_n$ = Factors influencing the examined employee's performance (e.g. age, professional qualifications, education etc.)

On the grounds of the answers given by the persons queried summarizing the directions of effects on workplace performance of individual factors we come to the following formula (5):

$$HP = f(\uparrow a; \uparrow b; \uparrow c; \uparrow d; \uparrow e; \uparrow f; \uparrow g; \uparrow h; \uparrow i; \uparrow j; \uparrow k; l; m; n; o; p) \quad (5)$$

Where:

a = Increase of employee's age	i = Increase of employee's performance goals
b = Improvement of employee's professional skills	j = Improvement of atmosphere at workplace
c = Increase of employee's qualifications	k = Improvement of communication at workplace
d = Increase of employee's years of work experience	l = Employee's personal characteristics
e = Improvement of executives' skills	m = Employee's tolerance
f = Improvement of personnel culture	n = Employee's innovation
g = Increase of employee's motivation	o = Employee's performance orientation
h = Increase of employee's satisfaction	p = Employee's IQ
□ = The increase of the factor results in an increase of the company's performance	
□ = The decrease of the factor results in the decrease of the company's performance	
⋈ = The effect cannot be stated unequivocally	

If there were a human value function - continuing my vision - then we could no longer just look for the optimal employee structure based on skills, but also look for the staff that will deliver the highest value to the company. Today, this optimisation task can only be carried out by considering only human capabilities and the combination of the skills required for each position as an optimisation task, with the aim of selecting the employee with the most appropriate skills for the position. An example of an initiative to develop such a method can be found in (Spencer, 1995) in his book "Redesigning Human Resources". (Spencer, 1995) proposes to companies the use of a company-wide human resource software that includes, among other things, periodic measurement of the employees' skills. When a job becomes vacant, the software can be used to select the employees who are best suited for the position based on their skills, and then compare the skills of the employees to find the most optimal candidate (Spencer, 1995). The question is whether we are indirectly claiming that if I put the individual with the best skills for the position in that certain position, then the value of the company will automatically be maximised. At that moment, this relationship exists only at a theoretical level. To prove this, we would need to know for each position or employee how much they contribute to the company value, be aware of the degree of synergy between employees and then find the best employee for the position, while keeping in mind the maximisation of the company value. This is where the human value function would play a role. On a merely theoretical level - in my opinion - there should be an organisational structure under which the company value is maximised. With the help of „exclusivity calculus (excalculus)” method by Garai (1997) – by jurying – the applicant with optimum skills for the subject position may be selected. I am convinced that if we improved the human value function, we would be able to search for the personnel generating the highest company value too.

## 5. CONCLUSION

The company value - for each company, starting from a selected point in time, analysing the processes in the company, using a discounted cash flow method, is the part that can be determined uniquely for the company - can be directly linked to the employees (people working in the company or for the company), i.e. within the company value there is a value generated exclusively by people, the human resource value, which can be detected and calculated. The Human Free Cash Flow model I have developed is a suitable way of determining this value.

<b>Characteristic feature</b>	<b>Explanation</b>
Discounted free cash flow based	The model is the improvement of the discounted cash-flow based company valuation.
It is based on the separability, separate valuation than addable nature of cash flow	Damodaran' view already mentioned above (Damodaran, 2006.)
Related to basis data and starting date	Most planning and valuation models are grounded on basic data and expected figures, this is the same with Human Free Cash Flow Model.
Company specific	By companies, industries different results are received under the valuation principles. The reason lies in the fact that there are no two similar companies. Each company has individual people who are able to achieve individual team results co-operating with their colleagues in an organisation building up in a unique way, and within the environment characteristic of each company in an idiosyncratic way. At every company, the degree of automation is entirely different.
Process-oriented	Free cash flow factors are investigated by breaking them into processes and on these grounds will we be able to decide which factors can be listed among human and automatic cash flow elements.
Subjective	With regard to the fact that a lot of decisions are to be made when building up the model and dividing the factors of cash flow - the result greatly depends on the person of the valuator.
Future-oriented	It concentrates on the future performance of the company, such as the DFC model serving as a basis of such.

*Table 6: The characteristics of Human Free Cash Flow (HFCF) Model  
(Source: Own composition)*

I would like to emphasise the following: when we have a discounted cash flow-based planning model to define company value, the suggested procedure will not result in a company value differing from an aggregate model, still draws the attention to how much the calculated company value depends or does not depend on the employees of the company. In my view - when a company with great human value is to be acquired – it will be incredibly important to examine the employees' status, satisfaction, motivation, risks of migration and a series of other factors. If it happens, my study reached its goal: the role of human factor played in the company value was brought into focus. By applying the principles behind my theory for breaking down human and automatic factors, not only free cash flows, but also the economic value added within the company, or the underlying data currently used by any return-based business valuation model can be broken down, so that the method can be applied in any return-based

business valuation model. By further developing the human value function that I have presented, it may be possible that we would be able to search for the personnel generating the highest company value too. I think I can claim the human, as a particularly unique source of labour that contributes to the formation and changes in the value of a company where he works for at a significant, detectable extent.

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## VIRTUAL LEARNING QUALITY ANALYSIS

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### ABSTRACT

*In the context of the rapid development of technology and global challenges such as the COVID-19 pandemic, online education is becoming an increasingly important tool in the delivery of educational content. This research aims to analyze how online learning affects students, teachers and the educational system as a whole. Using quantitative and qualitative methods, the study provides insight into student perceptions of teaching quality, support methods, and academic ethics in an online environment. In addition to surveys, data from the Learning Management System (LMS), in this case Moodle, was also analyzed in order to see the actual interaction and engagement of students. The results show the variable effectiveness of online methods and tools, as well as the different challenges and advantages that online learning represents for different stakeholders. The study serves as a foundation for further research and development in the field of online education.*

**Keywords:** *online education, student perception, Learning Management System (LMS), academic ethics, support methods*

### 1. INTRODUCTION

This paper will describe the results of part of the project, which sought to improve the quality of virtual studies by creating a teaching / learning methodology and applying technological and pedagogical innovations (teacher didactics, digital competences, gamification of the learning process), which would affect the availability of studies and student motivation. The project was implemented through staff education on pedagogical and technological innovations (growth of digital literacy competences among academic staff) and transfer of good practices of cohesion in Europe. Teachers with a deeper understanding of virtual learning, pedagogical and technological innovations will be able to use this data in their courses, which will ensure the quality of studies, student motivation and academic integrity. In this way, the university will ensure the quality of virtual mobility and the recognition of study results by developing the internationalization of higher education at home (virtual mobility of students and teachers, inter-institutional studies, mobility windows). The project holder was Kaunas University (Lithuania), while the project partners were Savonia University of Applied Sciences (Finland), School of Coding Limited (England), Francisco de Vittoria University (Spain), Zagreb School of Business (Croatia). The project lasted two years, from 2021 to May 31, 2023, and classes were held in a virtual environment in the winter semester of 2022/23 academic year. In the modern age characterized by accelerated digitization and globalization, education is undergoing a series of transformations that directly affect teaching methods, classroom dynamics, and student experiences. Online education, which until recently was a supplemental teaching method, is quickly becoming a key tool for delivering educational content on a global scale.



This trend has been further fueled by the COVID-19 pandemic, which has forced educational institutions to quickly switch to online learning models. Given this paradigm shift, there is a need for a deeper understanding of how online learning affects students, teachers, and the education system as a whole. The goal of this research is to analyze the perceptions and experiences of students in an online educational environment, with special emphasis on the quality of teaching, support methods, and academic ethics. In addition, the research will provide insight into the effectiveness of various educational tools within the Learning Management System (LMS), in this case Moodle, in order to optimize teaching resources and methods. The research is conceived as quantitative and qualitative, and includes surveying students of different years and professional fields. In addition to surveys, data analysis from the LMS itself is also used to see the real interaction and engagement of students in online learning. This article is structured in several parts that include literature review, methodology, results, discussion and conclusions. The literature review will focus on different generations and models of online education, support methods and academic ethics, and will include relevant theories and empirical research. The methodology will describe the research design, the sample and the instruments that were used. The results and discussion will analyze and interpret the data, while the conclusions will summarize the main findings and suggest directions for future research and practice. Therefore, this research will not only provide insight into current trends and challenges in online education, but will also serve as a basis for further research and development in this dynamic and increasingly relevant field.

## **2. LITERATURE REVIEW**

Given the exponential growth and increasing popularity of virtual studios, studying their quality has become imperative. From this comes the need to understand the different dimensions that shape the quality of online education, from pedagogical approaches and effectiveness to student satisfaction and the challenges they face. In this extended literature review, we will delve deeper into key research and theories that help shape the understanding of quality in virtual studios. In their study, Anderson and Dron (2011) study how distance education methods and technologies have evolved over time. They identify three generations of pedagogy in the context of distance education: the first generation that relies on written correspondence, the second that uses television and radio, and the third that relies on digital technologies. Bates (2015) further develops this theme, arguing that each new generation brings its own strengths and challenges, but also provides educators with a new arsenal of tools they can use to improve educational outcomes. The undeniable significance of e-learning in education has led to a massive growth in the number of e-learning courses and systems offering different types of services (Al-fraihat et al.) Thus, evaluation of e-learning -systems is vital to ensure successful delivery, effective use, and positive impacts on learners. A meta-analysis by Means et al. (2013) indicates that online and hybrid forms of education are often as effective, if not more effective, than traditional forms of education. This efficiency, however, is not simply a function of technology, as noted by Zhao et al. (2005). They point out that the quality of the teaching material and the interaction between students and teachers play a crucial role in determining the success of online programs. Abdous (2009) wanted to propose a process-oriented lifecycle model for ensuring quality in e-learning development and delivery. As a dynamic and iterative process, quality assurance (QA) was intertwined with the e-learning development process. Following a process-oriented lifecycle approach, the paper emphasises that QA requires a supportive environment that explicitly recognizes quality as a work value and as an enabler for reaching organizational goals. Research by Paechter and Maier (2010) illuminates the complex relationships between students and the online environment. While students appreciate the flexibility and accessibility of online education, they also express concerns about the lack of social interaction and feelings of isolation.

Moore (2007) introduces the concept of "transactional distance", which can be reduced through better designed communication mechanisms and feedback, ultimately leading to greater student satisfaction. Rovai and Downey (2010) analyze several key reasons why some online programs fail. Among them are technological challenges, such as unreliable infrastructure and poorly designed user interfaces, but also issues of academic honesty and plagiarism. Tallent-Runnels et al. (2006) further explore how challenges can be overcome through innovative pedagogical practices, including gamification and the use of artificial intelligence in assessment. Based on the experiences in distance lifelong learning programmes in the University of Patras' Educational Center for Life-Long Learning (KEDIVIM), authors Mystakidis et al. (2019) present how the principles and attributes of deep and meaningful learning can be combined with project management in practice and be incorporated in an e-Learning quality strategy. They present the methods used to assess the quality of the e-Learning programmes, key findings of the evaluation process and first research evaluation results on the quality of learning. This research study on learning process quality was conducted by using an online questionnaire, which aimed at estimating the level of participants' satisfaction while using interactive learning methods such as collaborative learning. Some results of the evaluation indicate that the e-Learning quality strategy led to e-Learning programmes that used active learning methods to achieve high learners' satisfaction towards deep and meaningful learning. Study of authors from National Chiao Tung University, Taiwan, Huei-Chuan and Chien Chou (2020) proposes a comprehensive structural model to determine whether online learning perceptions and online learning readiness affect students' online learning performance and course satisfaction. The results from the structural equation modeling analyses revealed that students' self-efficacy regarding computer and Internet usage, along with their motivation for learning, had a direct and positive influence on their online discussion performance and overall course satisfaction. Additionally, the study unveiled that students' self-efficacy in utilizing computers and the Internet for online learning readiness played a mediating role. This not only impacted their perceptions of online learning and online discussion performance but also influenced their perceptions of online learning and course satisfaction. Nugruho et al. (2021) facilitated the improvement of the overall educational experience by generating insights through student-centric evaluations. The primary objective of this research endeavor was to scrutinize the quality of online learning amidst the unprecedented backdrop of the COVID-19 pandemic. Evaluating the quality of the learning experience is of paramount importance within the realm of teaching and learning. This assessment serves the vital purpose of upholding and sustaining the excellence of learning. Among the arsenal of resources at our disposal, learning quality assurance instruments stand out as potent tools in our quest to enhance educational standards. Review by Hafeez and Sultan (2022) showed that learner-teacher interaction, learner's prompt feedback, learner's support service, applying appropriate media, tools for online learning and planned documented technology application for the assurance of quality in online learning are important quality indicators. Understanding the quality of virtual studies is a complex and dynamic process that must be viewed from multiple angles. While technology provides new opportunities for education, the key to success lies in the quality implementation of pedagogical strategies, the creation of interactive and engaging environments, and the provision of continuous support and feedback to students. Also, challenges and obstacles that can affect the quality and effectiveness of virtual studies should be further investigated and addressed.

### **3. METHODOLOGY**

When planning and developing teaching/learning studies based on information and communication technology (ICT), content preparation must be based on a certain methodology and theoretical provisions that would help ensure the quality of studies and solve the issue of effective teaching/learning organization.

Preparing the content of a study subject adapted to remote work, organizing the teaching process and ensuring academic integrity become vital competences of teachers. Teachers today face challenges in choosing the most appropriate technologies and applying unused tools. However, even the best-designed learning course will not work if the learner is not striving for progress, so the learner's self-control and motivation, which are often lacking, are essential to learning in a Virtual Learning Environment (VLE). Therefore, it is important that in the VLE the teacher can choose the most appropriate learning and assessment methods (ensuring academic integrity), provide the necessary support system that would enable learning to be directed in the right direction. This is precisely why there is a need for a methodology based on which teachers could effectively choose appropriate tools and methods for virtual learning, provide information in an inclusive and comprehensible manner. To date, there is no general methodology that would ensure the quality of the virtual course and conducting studies in an interesting and motivating way. There is also no confidence in the fairness and reliability of the obtained grades. These problems exist not only at one university, but also at numerous other universities, so their solution is extremely relevant for the entire higher education sector. The Moodle program was used in this project. Currently, Moodle is already used by all organizations involved in the project and has the largest market share in Europe (57%) according to LISTedTECH. Efforts will be made to solve the above-mentioned problems by improving the quality of virtual studies, creating a teaching/learning methodology and implementing technological and pedagogical innovations (teacher didactics, digital competences, gamification of the study process), which will increase the availability of studies and student motivation. This paper presents part of the results of a project aimed at educating staff on pedagogical and technological innovations (growth of digital literacy competences among academic staff) and transfer of good practice for cohesion in Europe. Teachers with a deeper understanding of virtual learning, pedagogical and technological innovations will be able to use this information in their courses, which will ensure the quality of studies, student motivation and academic integrity. Higher education institutions will be able to ensure the quality of virtual mobility and recognition of study results by developing the internationalization of higher education in the country (virtual mobility of students and teachers, inter-institutional studies, mobility windows). The goal of this project was to increase the quality of teaching/learning in a virtual environment and the study process, by creating prerequisites for recognizing the results obtained during virtual mobility.

Project activities were:

- creation of teaching/learning methodology in VLE
- improving the competencies of the academic staff
- pilot testing of the developed teaching/learning methodology.

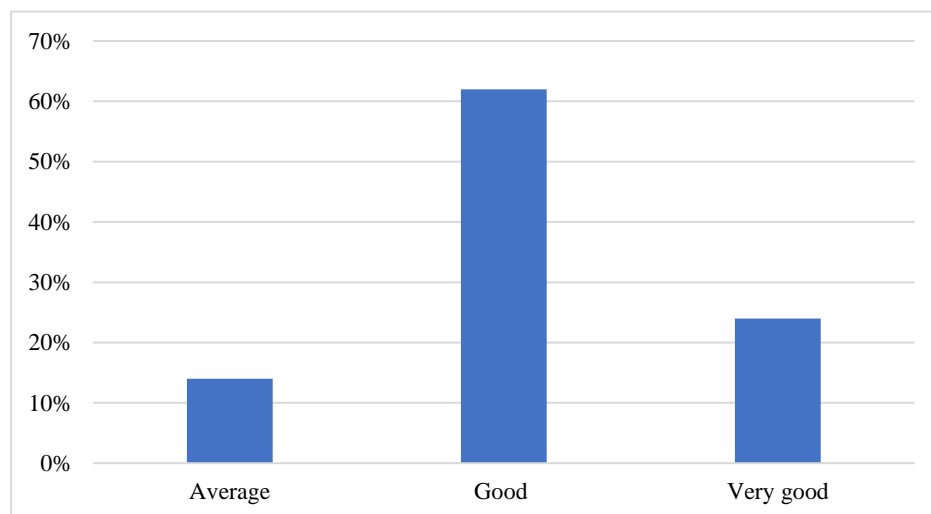
#### **4. EMPIRICAL DATA ANALYSIS**

The research was conducted in September 2022 and January 2023. In September (before the beginning of the semester), a questionnaire about expectations about learning in a virtual environment was sent to the teachers who will be teaching and to the students who will be attending the classes. At the end of the semester, a questionnaire was sent to the participants in order to evaluate their satisfaction with the teaching and to compare the received content in relation to the expected one. 38 respondents participated in the research before the implementation, while 21 respondents filled out the questionnaire after the virtual class. The demographic data of the respondents are listed in the table below.

Variables	Category	Percentage (pre-survey)	Percentage (post-survey)
Gender	Male	23.7%	38.1%
	Female	<b>73.7%</b>	<b>61.9%</b>
Study year	First	13.2%	9.5%
	Second	15.8%	19 %
	Third	<b>36.8%</b>	<b>57.1%</b>
	Fourth	<b>34.2%</b>	14.3%
Study field	Humanities	18.4 %	4.8%
	Social sciences	<b>47.4</b>	<b>52.4%</b>
	Medicine and health care	5.3%	9.5%
	Science	21.1	23.8%
	Art	7.9%	9.5%
Higher education institution	Kaunas University of Applied Sciences	23.7%	33.3%
	Francisco de Vitoria University	36.8%	19%
	Savonia University of Applied Sciences	28.9%	28.6%
	Zagreb School of Business	10.5 %	19%
Age	<b>Regular srudents (&lt;25 years)</b>	<b>81.6%</b>	<b>71.4%</b>
	Pat-time students (>25 years)	18.4%	28.6
<b>N (total)</b>		<b>38</b>	<b>21</b>

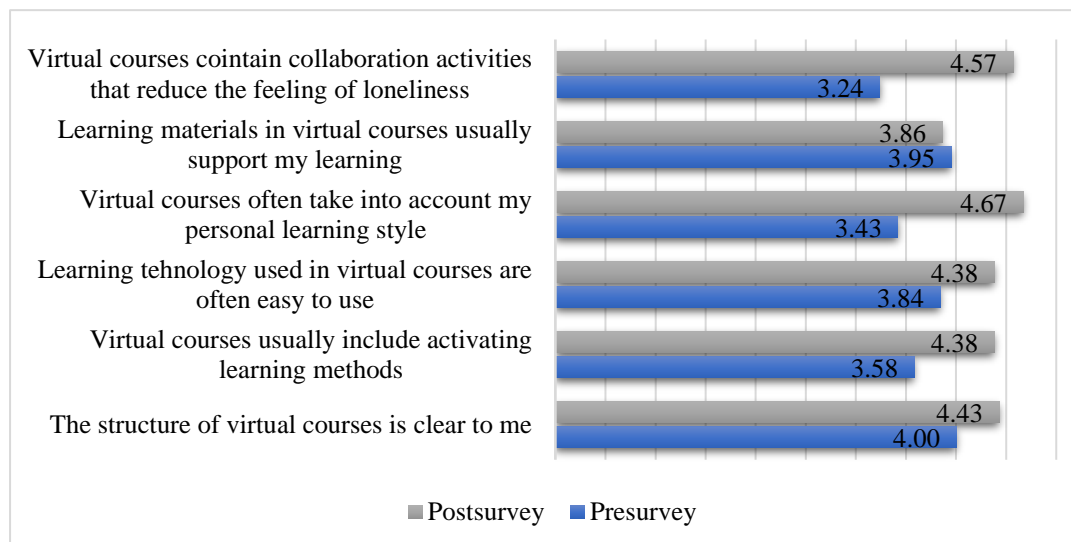
*Table 1: Demographic data of respondents (students) (N=59)  
(Source: Author's systematization based on project results 2023)*

After the classes, the students were mostly satisfied, which can be seen in the graph.



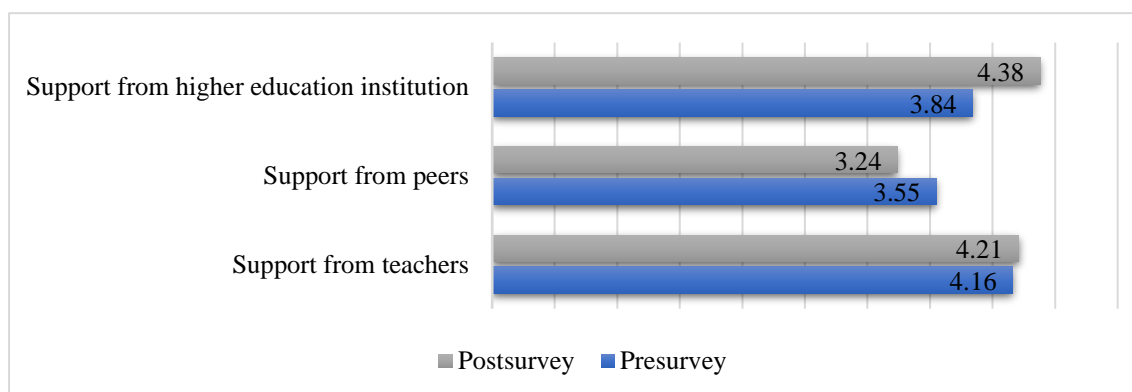
*Graph 1: Students' opinion about the quality of online courses (N=21)  
(Source: Author's compilation based on project results 2023)*

When it comes to using different online learning tools, it can be said that students got more than expected. The first two evaluated components are the structure of virtual courses and teaching methods (group work, problem solving, gamification...). In addition, they believe that the learning technology is easy to use, and that it easily fits into their personal learning style. They believe that the obtained materials make it easier to understand the material, and that virtual courses through teamwork reduce the feeling of loneliness when learning.



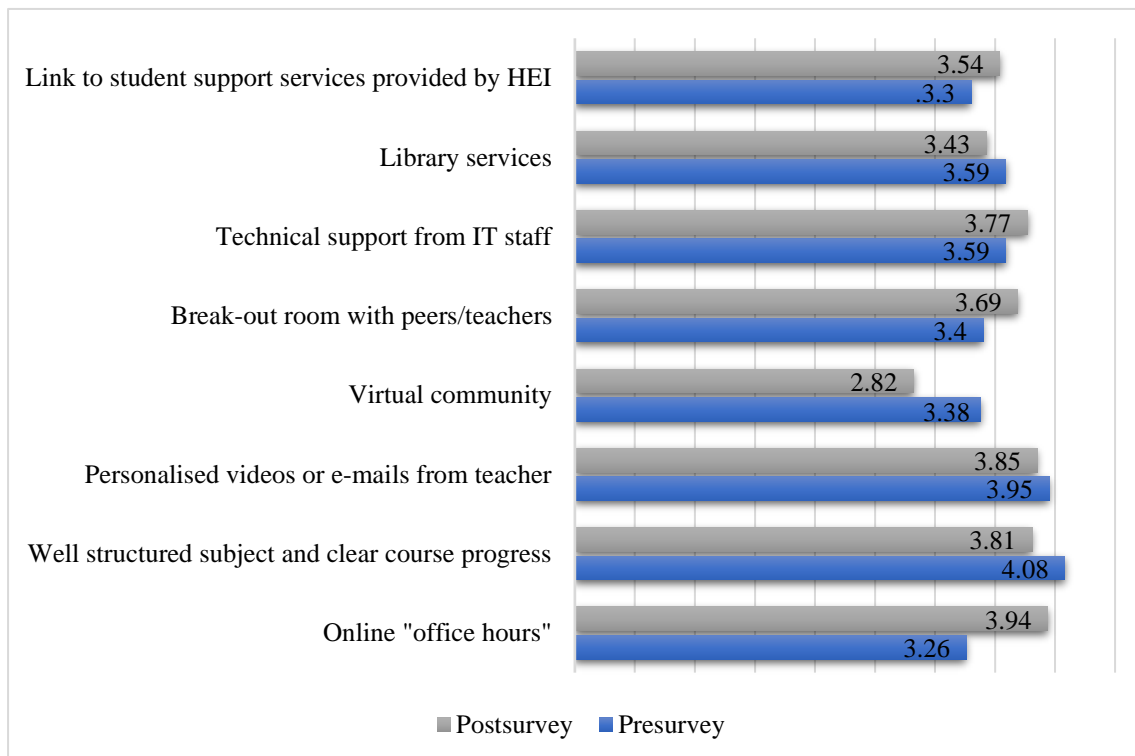
*Graph 2: Students' opinion about different technologies in online teaching (pre-questionnaire N=38; post-questionnaire N=21)*  
(Source: Author's compilation based on project results 2023)

The students' opinion about the effectiveness of the support channels during the course, which related to teachers, fellow students and institutional support, is extremely important. The results show that they received slightly less support during classes from other fellow students, while the expectations from the teacher and the institution were in line with what was received.



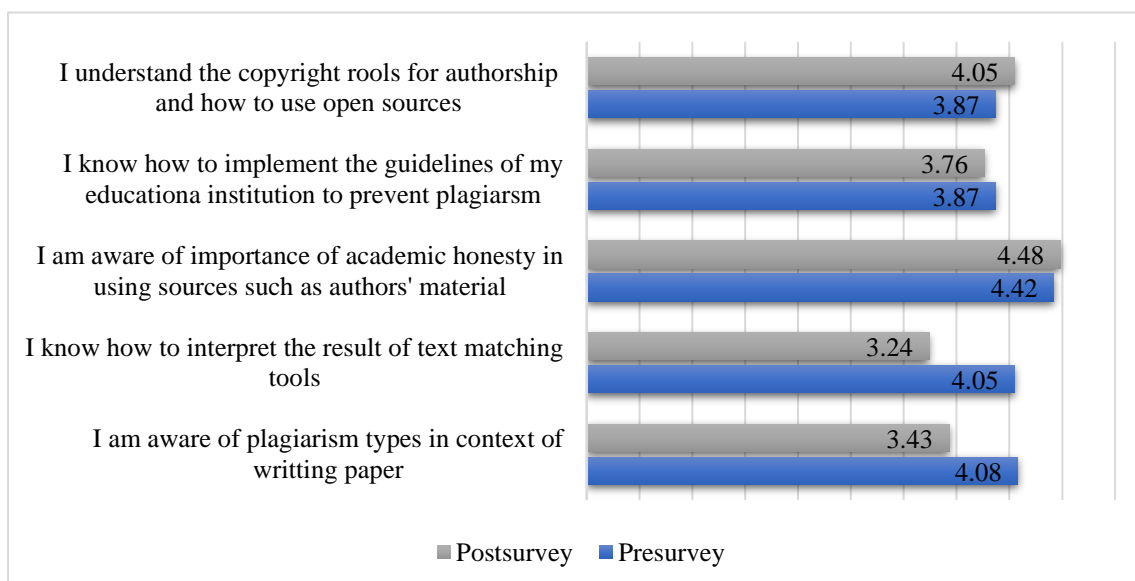
*Graph 3: Students' opinion on the effectiveness of support channels in the virtual environment (pre-survey N=38; post-survey N=21)*  
(Source: Authors' compilation based on project results 2023)

When it comes to students' opinions about the effectiveness of different support methods in the virtual environment, students gave the highest marks to well-structured courses and clear progress in mastering them. In addition, they highly rated the teacher's personalized approach through consultations via video or email, and the online availability of the teacher.



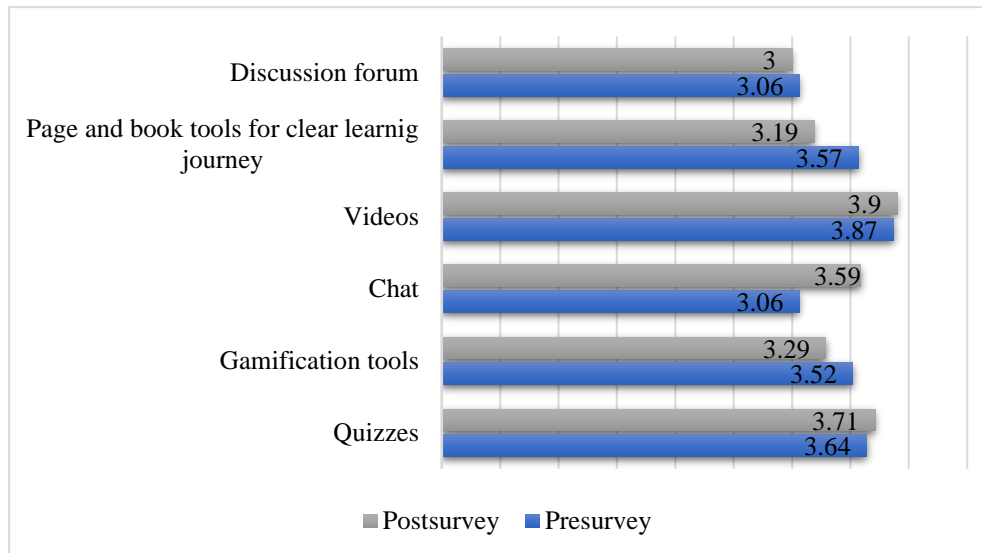
*Graph 4: Students' opinion on the effectiveness of different support methods in the virtual environment (pre-survey N=38; post-survey N=21)*  
(Source: Authors' compilation based on project results 2023)

Students' knowledge of academic ethics and prevention of plagiarism in a virtual environment shows students' awareness of the importance of academic honesty in the use of sources and materials in online form. However, the research conducted after the online classes showed that students still do not sufficiently recognize different types of plagiarism in the context of writing papers, and that they do not sufficiently understand copyright and the proper use of open sources.



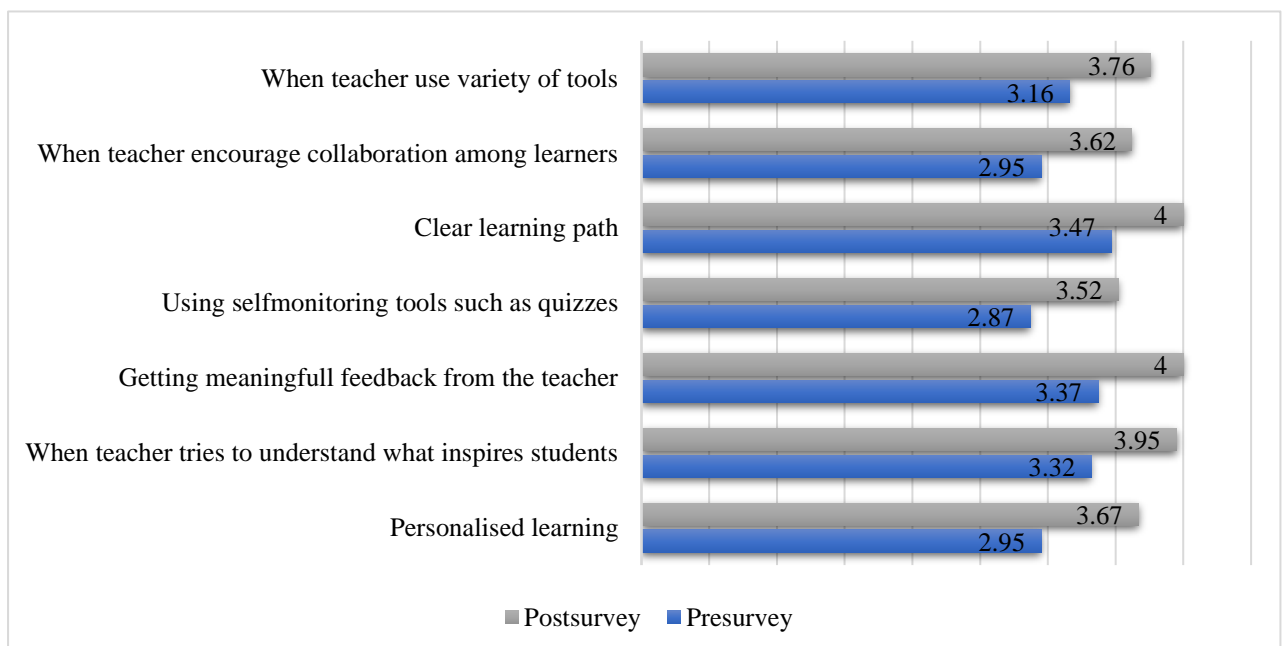
*Graph 5: Students' knowledge of academic ethics and prevention of plagiarism in a virtual environment (pre-survey N=38; post-survey N=21)*  
(Source: Authors' compilation based on project results 2023)

Graph 6 shows the Moodle tools used in online classes, of which the students gave the highest rating to video as a tool (in the questionnaires both before and after the class) and quizzes, while they gave the lowest rating to the forums that they consider to have the least effectiveness for successful implementation classes.



*Graph 6: Students' opinion on the effectiveness of different Moodle tools in a virtual environment (pre-survey N=38; post-survey N=21)*  
(Source: Authors' compilation based on project results 2023)

The factors that most motivated students in the virtual environment were receiving clear feedback from the teacher, and clear guidelines for learning. In graph 7 (post-questionnaire) it can be seen that the students got more than expected at the time of filling out the pre-questionnaire.



*Graph 7: Motivating factors for students in a virtual environment (pre-survey N=38; post-survey N=21)*  
(Source: Authors' compilation based on project results 2023)

## 5. RESULTS AND DISCUSSION

The research included a total of 59 respondents, of which 38 respondents participated in the initial questionnaire and 21 in the final one. Among the students, there is a significant representation of the female gender, especially in the previous questionnaire (73.7% versus 61.9% in the post-questionnaire). There is also a visible change in the demographic distribution by years of study; the third year became dominant in the post-questionnaire (57.1%). After the classes, the generally high level of student satisfaction suggests that the virtual studies largely met or even exceeded expectations. This is positive for institutions looking to turn to online education, but it also raises the question of how to maintain this level of quality. Students highly valued the structure of virtual courses and teaching methods. We can connect these results with the literature that emphasizes the importance of well-structured communication and pedagogical methods (Anderson and Dron, 2011; Bates, 2015). In addition, technology has proven to be not only a tool, but an extension of pedagogical practice, which is in line with studies that highlight the importance of technology in the educational process (Means et al., 2013). Although students are generally satisfied with the support of teachers and the institution, the support from fellow students was below expectations. This may indicate a need to improve inter-student interaction in a virtual environment, perhaps through a discussion forum or teamwork, which is consistent with research such as Paechter and Maier (2010). It is important to note that students still have a problem with understanding academic ethics and plagiarism rules, which is alarming and requires additional educational resources and courses. Students valued video materials and quizzes the most, while forums received the lowest ratings. This indicates that students are most motivated by interactive and dynamic content, which is reflected in the high score for clear feedback from teachers as a motivational factor. The research results indicate a generally high degree of satisfaction among students when it comes to virtual studies. However, key challenges were also identified, such as the lack of inter-student interaction and the lack of clarity around academic ethics. Given these findings, future research and practice should focus on optimizing interaction and support in a virtual educational environment and on academic ethics education. The results of this research coincide to a large extent with the findings from the literature. As Moore and Kearsley (2012) emphasize, quality structure and organization are key to the success of online education, which is consistent with the high ratings given by students for the structure and delivery methods of online courses. As Keegan (2002) points out, student satisfaction can be an important indicator of successful distance education. This claim is supported by the high level of satisfaction expressed by students in our survey. It is interesting that the results suggest that the support of fellow students is less effective. This may be related to the work of Garrison and Arbaugh (2007), who argue that "cognitive presence" may be less pronounced among students in virtual classrooms. This may explain the lower level of interaction and support among students. The topic of academic ethics and its lack suggests a need for more comprehensive education, as highlighted in the work of Sutherland-Smith (2008), who argues that students are often unaware of what constitutes academic dishonesty or plagiarism. In line with research by Herrington and Oliver (2000), students highly valued innovative tools such as video materials and quizzes. Forums, however, which were highlighted as useful for discussion in the work of Hrastinski (2008), were not popular, which may indicate differences in student preferences or perhaps the need for better moderation. For higher education institutions, these results indicate the need for a continuous approach to evaluation and innovation in online education, as highlighted in the work of Shea and Bidjerano (2010). The main results of this research is that students generally have a high level of satisfaction with virtual studies, which suggests that online education largely meets or exceeds their expectations. This is positive for institutions considering a shift to online education. However, the study also highlights the need to maintain the quality of virtual education.



The research emphasizes the importance of well-structured communication and pedagogical methods, with technology serving as an extension of pedagogical practice. It also points out that there is room for improvement in terms of inter-student interaction and addressing issues related to academic ethics and plagiarism rules. Additionally, the study shows that students are most motivated by interactive and dynamic content, with video materials and quizzes being highly valued, while forums received lower ratings. Therefore, future research and practice should focus on optimizing interaction and support in a virtual educational environment and enhancing education on academic ethics. Although this research has yielded several interesting findings, further research is needed to better understand the dynamics of online learning and to optimize it for a better learning experience.

## **6. CONCLUSION**

This research provides a comprehensive insight into the experiences and perceptions of students related to learning in a virtual environment. It is significant to note the high degree of satisfaction among students, who not only agreed to virtual methods of education but also reacted positively to the structure and implementation of virtual courses. In the area of demographics, changes in the distribution of gender and year of study between the pre- and post-questionnaire are significant, but not unexpected. The wider inclusion of men and third-year students in the post-research may indicate changes in engagement and priorities in the context of online education. Regarding the quality of teaching and support methods, students expressed a high level of satisfaction, especially in relation to the course structure, delivery methods and technological tools that were used. This is a sign that educational institutions have effectively implemented online tools and methods that meet the needs of students. However, there is also room for improvement. Although students are generally satisfied with institutional and teacher support, reports show that support from fellow students is not at the same level. This may mean that work needs to be done on encouraging collegiality and teamwork in a virtual environment. Regarding academic ethics and plagiarism prevention, students showed an awareness of the importance of academic honesty, but also showed a lack of understanding when it comes to different types of plagiarism and copyright. This indicates a need for additional education and support in this area. In an analysis of the effectiveness of different Moodle tools, video and quizzes stood out as the most useful, while forums were less popular. This can serve as an indicator for future adjustments in the selection and implementation of educational technologies. Ultimately, the factors that most motivated students in the virtual environment were clear feedback and learning guidance from the teacher. This emphasizes the importance of a well-structured and managed educational process, even when it takes place in a virtual environment. Of course, there are several potential limits and problems in this research such as small sample size. The research is based on a relatively small sample of 59 respondents, with only 38 participants in the initial questionnaire and 21 in the final one. This small sample size may limit the generalizability of the findings to a broader student population. Also, the change in the demographic distribution of participants between the initial and final questionnaires, particularly in terms of gender and years of study, may introduce selection bias. It's possible that the views and satisfaction levels of the respondents who dropped out or joined later could significantly differ from those who completed both questionnaires. Regarding demographic imbalance, the significant representation of the female gender, especially in the initial questionnaire, could affect the results, as gender-related factors may influence student satisfaction and preferences in virtual education. The study doesn't account for the possibility of temporal changes in the students' experiences and satisfaction levels over the course of their virtual studies. What was true at one point in time may not necessarily hold in the future. It also does not consider potential differences in the quality and delivery of virtual education across different institutions, which can significantly impact student satisfaction.

These limitations and potential problems should be considered when interpreting the findings and when planning future research in this area. In conclusion, this research provides valuable insight into the student's distance learning experience and serves as a foundation for further development and improvement of online education practices. Given the current importance and growing trend of online education, this knowledge is invaluable for educational institutions, teachers and, of course, students.

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## FISCAL EQUALIZATION AS A FUNCTION OF REGIONAL DEVELOPMENT

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### **ABSTRACT**

*The regional development of the Republic of Croatia largely depends on the degree of fiscal federalism between local and regional self-government units. Of great importance is the abundance of tax revenues (specifically personal income tax), on which the development of individual regions of the Republic of Croatia depends. In the tax system of the Republic of Croatia, personal income tax is a shared tax that is actually divided between cities and counties in favor of the cities. The paper will present importance of satisfying public needs in terms of counties, cities and municipalities through a way of collecting tax revenue derived from shared taxes. For many years, when distributing income tax, there was a category of fiscal equalization and decentralized functions (education, firefighting, health and social care). The aim of this paper is to determine the existence of the policy of fiscal federalism and fiscal equalization in the Republic of Croatia, but also with special reference to individual EU members, where a uniform policy of fiscal equalization is not actually implemented. The financing of individual decentralized functions, i.e. both material and personal income costs of the persons employed in them, will also be processed.*

**Keywords:** *fiscal federalism, fiscal equalization, personal income tax, self-government units*

### **1. INTRODUCTION**

The goal of fiscal federalism is to recognize and please the public needs, furthermore to encourage local and regional development. Only by achieving those goals of federalism can the state motivate and satisfy its citizens for contributing to the accomplishment of public affairs. There are also differences in the need for local public services, as well as in the cost to provide the same level of certain services between subnational governments (local and regional self-government units). These differences vary with regard to many factors like age, different social structures, population, different environmental and economic conditions, fiscal capacity etc. Fiscal equalisation has to be primarily aimed at equalisation of region's possibilities to provide comparable level of goods and services regardless of the place where inhabitants of the state or EU live. (Capkova and Roncakova, 2014, p. 376) It is not a charitable contribution from richer to poorer. (Buchanan, 1950, p. 596) According to Buchanan "financial equalization is based on a firm principle in which it gives the opportunity to regions/states inhabitants with lower income possibilities right to obtain financial sources or order to ensure fiscal equality". While some countries have developed distinct equalisation transfers, others do not even use the term "equalisation" although most have some implicit instruments to attenuate inter-jurisdictional fiscal disparities (Blöchliger et al, 2007, p. 5). Its primary policy objective is horizontal equity among the residents of different jurisdictions, i.e. ensuring that, subject to decisions of local and regional self-government units, all persons or organizations in a country can obtain comparable public services at comparable tax rates. Fiscal equalisation may also correct or alleviate at best for inefficiencies that might arise if households choose their location based on fiscal rather than productivity considerations, although equalisation itself may reduce labour mobility and hence adjustments between regions, cities and municipalities.

## **2. FISCAL FEDERALISM AND FISCAL IMBALANCE**

Fiscal federalism often leads to growth of fiscal imbalance because the optimal degree of decentralization is generally larger on the spending than on the revenue side. As a result, the lower levels of governments (local and regional self-government units) do not raise sufficient revenue to match their expenditure responsibilities. This situation is referred to as vertical fiscal imbalance. The allocation of expenditure and revenue assignments in fiscally decentralized countries is also accompanied by the emergence of horizontal fiscal imbalances between local government budgets because of the different fiscal capacities and expenditure needs. The proper system of intergovernmental transfers can correct inequities and inefficiencies caused by federalism. In practice, we may distinguish between systems of revenue sharing and intergovernmental grants. The main mechanism for intergovernmental transfers is grants from central government to local and regional governments. A variety of unconditional grants are in use to address vertical imbalances. Provision of conditional grants from the centre to local and regional self-government units block aims to financing certain services, such as primary education, social services and roads. Equalisation grants are usually used to address horizontal imbalances between local authorities. (Capkova and Roncakova, 2014, p. 377) Under the tax sharing arrangement subnational governments are automatically attributed a fixed percentage of the yields of certain national tax without any discretion or taxing power of subnational authorities. Moreover, central governments play a dominant role in determining the amount of revenue each sub-central unit receives from the shared source which automatically decreases the level of fiscal federalism of local and regional self-government units. Resources that come from tax sharing are thought to convey more power and autonomy to subnational government than intergovernmental grants.<sup>1</sup> In the first case the revenue share of each sub-national government is strictly related to what it generates on its own territory. Tax share allocated to each region is proportional to what that region generated on its territory and there is no horizontal redistribution or fiscal equalisation across local/regional governments. The other arrangement redistributes a fixed share of specific tax revenues to subnational governments on the principle of horizontal fiscal equalisation, levelling out differences in potential revenue raising capacity and/or needs. Fiscal equalisation arrangements are implemented indirectly via a vertical system financed by national tax revenues generated at the sub-national level (Capkova and Roncakova, 2014, p. 377). Revealing the possible relationship between fiscal federalism and regional growth is an important issue in countries with centralized systems as well as for the countries with decentralized. (Capkova and Roncakova, 2014, p. 382)

## **3. THE CONCEPT AND THE GOAL OF FISCAL EQUALIZATION**

Fiscal equalization programs can be based on the equalization of fiscal capacities, fiscal needs or both. In theory and practice, there is still no consensus on whether the system of fiscal equalization should alleviate differences in the fiscal capacities and/or needs of local units (Bajo and Primorac, 2013, p. 77). Equalisation is in its nature passive and corrective fiscal policy with no fiscal growth and economic development strategy behind it, and there is a case for concomitant policies aiming at productivity increases, such as transport, research and education. Fiscal equalisation aims at equalising local and regional public revenue, not GDP or individual household revenue (Blöchliger et al, 2007, p. 7). Fiscal equalisation is the transfer of financial resources to local and regional self-government units to enable them to provide their citizens with similar levels of public services at similar levels of taxation. We can view fiscal equalisation as the logical companion to fiscal decentralisation in that it seeks to correct disparities and any imbalances that may result from sub-central fiscal autonomy.

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<sup>1</sup> Also in a tax sharing system, subnational governments tend to bear more financial risk in terms of tax revenue losses or fluctuations than if their revenue was based on grants (More in Blöchliger and Petzold, *Finding the Dividing Line Between Tax Sharing and Grants: A Statistical Investigation*, 2009).

Distinct fiscal equalisation arrangements first emerged during the 1940s and 1950s in a number of federal countries. Fiscal equalisation is reflected not only in its extensive use in federal but also in many unitary countries. Across the OECD, fiscal equalisation transfers average around 2.5% of GDP, 5% of general government spending, and 50% of intergovernmental grants (Blöchliger, 2014, p. 2). They translate into differences in tax-raising capacity, which makes it difficult for some jurisdictions to provide adequate service levels. For instance, GDP per capita values may be distorted when people live and work in different jurisdictions. Geography and the number and size of sub-national jurisdictions complicate the picture, too, as countries with more and smaller local and regional self-government units generally show wider disparities (Blöchliger, 2014, p. 2-3).

While differences in GDP are the main reason for unequal public service provision between jurisdictions, the cost of public services, too, is also a factor for two reasons:

- 1) The composition of the population is not the same from one jurisdiction to another, and the cost of public services targeted at special groups (children, elderly, ill, disabled, the unemployed, etc.) are higher.
- 2) The cost per service unit changes with geography – e.g. infrastructure in the mountains is more expensive than in the plains. An important parameter in the cost of services is a jurisdiction's size and density of population. Densely populated jurisdictions tend to benefit from economies of scale and agglomeration. Certain services (hospitals, motorways, specialised healthcare, etc.) can be supplied efficiently only above a minimum scale, while their provision in scarcely populated or remote areas tends to be relatively more expensive or insufficient. Geographical patterns in population may affect service costs, too, as the share of the population living in rural and remote areas varies widely across countries (OECD, 2011).

Overall, disparities are much narrower in service costs than in tax-raising capacity, hence the widespread preference for equalising the latter. (Blöchliger, 2014, p. 3-4)

#### **4. REVENUE AND COST EQUALISATION**

Due to the different conditions in which individual areas have developed, local and regional self-government units differ in the level of economic development, in their tax bases, tax rates and tax immunity and therefore in their ability to raise revenues from the taxes that have been assigned to them. In other words, not all local and regional self-government units are able independently (without central government assistance and interfering) to provide an adequate level of public services to all their citizens (exercising a comparable level of tax collection effort) (Primorac et al, 2022, p. 539). A sub-central government's needs are determined by its fiscal capacity, i.e. its ability to raise revenue and the cost of its services. Fiscal capacities of local and regional self-government units vary. To enable local and regional self-government units to provide similar services at similar tax levels, most countries equalise both revenue-raising capacities and expenditure needs, while some only have revenue equalisation arrangements. The choice is determined mainly by the system of government. Federal countries generally practice revenue equalisation, while unitary countries – where central government funds local and regional self-government units directly – tend to pursue both revenue and cost equalisation, owing to the much sharper cost disparities at municipal than at state/regional level (Blöchliger, 2014, p. 5). To correct imbalances between local and regional self-government units, fiscal equalisation explicitly provides greater per capita transfers to units with below-average tax-raising capacity or above-average public service costs.

Equalisation arrangements can hence be broken down into two dimensions:

- 1) Revenue versus cost equalisation-hether equalisation aims mainly to reduce differences in tax-raising capacity or in the cost of providing public services.
- 2) Horizontal versus vertical equalisation-whether wealthy jurisdictions directly provide resources to poor ones (Robin Hood principle), or whether central government does so (gapfilling principle). (Blöchliger, 2014, p. 4)

## **5. TYPES OF FISCAL EQUALISATION**

Boadway (2007) distinguishes two types of fiscal equalization. The first is a net equalization system based on aid to poorer local units financed by the income of richer local units. In the second - gross equalization system, the central government collects enough revenue to finance the fiscal equalization system. A gross equalization system implies the existence of a corresponding fiscal imbalance. It arises when relatively more responsibility (fiscal needs) than authority in collecting revenues (fiscal capacities) is transferred to local units. Thus, the "revenue surplus" is retained at the level of the central government, which can direct it to local units through the mechanism of gross fiscal equalization.

### **5.1. Fiscal equalization instruments.**

Fiscal instruments for implementing equalization policy can be divided into two groups - revenue sharing and central government assistance. By dividing revenues, the state leaves part of usually tax (and sometimes non-tax revenues) to local and regional units, taking into account the facts of where the tax base is located. This fiscal instrument does not contribute to the alleviation of fiscal inequalities, so it has found wider application in the alleviation of vertical fiscal imbalances. The distribution of tax revenues is less effective in implementing fiscal equalization than non-targeted aid. In relation to income distribution, the state directly supports weaker local units with aid from the central state budget, but too much reliance can have numerous negative consequences. (Bajo and Primorac, 2013, p. 78)

## **6. FORMS OF FINANCING THE FISCAL EQUALISATION SYSTEM**

Shah (2007) calls fiscal equalization in which higher levels of government finance equalization at lower levels paternalistic, while Dafflon (2007) calls it vertical. On the other hand, fraternalistic or horizontal fiscal equalization is performed in such a way that local units at the same level of government establish a fund that is financed by rich units, while the poorer ones withdraw funds from the fund (Bajo and Primorac, 2013, p. 77). Most countries combine horizontal and vertical equalisation. Questionnaire responses suggest that horizontal arrangements are more effective as they have higher equalisation effects per monetary unit (Blöchliger and Charbit, 2008). generally they are also more transparent in a way that they provide greater information on financial flows between donors and recipient jurisdictions. In horizontal equalisation systems the debate shifts to the sub-national level-i.e. between rich and poor local and regional self-government units-as the central government is no longer involved financially (Blöchliger, 2014, p. 6).

## **7. EFFECTS OF FISCAL EQUALISATION**

Equalisation significantly reduces disparities between local and regional self-government units. Disparities in fiscal capacity are reduced by roughly two thirds on average. Most country arrangements have roughly similar equalising effect, but in a few countries disparities are virtually reduced to zero. Horizontal fiscal equalisation has a slightly stronger equalising effect per GDP percent used than vertical fiscal equalisation. On the other hand, vertical equalisation can become a problem for budget stability. Horizontal systems are less likely to create budget problems since central government is financially not involved.

Fiscal equalisation makes up around 2.3 percent of GDP. Across countries, the size of equalisation transfers varies between 0.5 and 3.8 percent of GDP. (Blöchliger at al, 2007, p. 6) Cost equalisation is prone to rent seeking and can become ineffective. Given that the higher expenditure side is more decentralised than the revenue side and given the heterogeneity of local and regional public services, cost equalisation tends to become complex and prone to pressure from special interests. Revenue equalisation can reduce tax and development effort, especially in poorer regions. Revenue equalisation leads to redistribution from urban areas to rural areas because the rural areas tend to have lower revenue-raising capacity. Cost equalisation based on geographical need indicators usually reinforces redistribution to rural areas where infrastructure costs tend to be higher. In contrast, the use of socio-economic need indicators like social welfare weakens redistribution because socio-economic costs are generally higher in urban areas. Still, urbanised areas in most countries remain net contributors to fiscal equalisation systems since higher revenue-raising capacity and lower geographical needs outweigh socio-economic need, as the equalisation experience in Sweden, Finland, Norway, Japan, South Korea and Italy attests (Blöchliger, 2014, p. 7). High equalisation rates can create moral hazard in a way of undermining efforts of local and regional self-government units to increase their own tax bases and boost regional growth (OECD, 2006). Local and regional self-government units may also increase tax rates in order to narrow the tax base and obtain higher equalisation grants, which results in strategic tax-rate setting and an overall increase in taxation levels. (Blöchliger, 2014, p. 10)

## **8. FISCAL EQUALISATION IN EU**

The European Charter of Local Self-Government foresees assistance to financially weaker local units in order to correct the effects of unequal distribution of funding sources and financial burden (Article 9). In addition, the Council of Europe has in separate documents the so-called recommendations provided guidelines for the implementation of equalization policy at national levels, which are not binding (Bajo and Primorac, 2013, p. 76 ). At the EU level, a consistent and uniform policy of fiscal decentralization and fiscal equalization is not implemented. The intensity and trends of fiscal decentralization in EU countries differ considerably. Fiscal equalization systems differ in terms of goal and financial potential, and there is no consensus on the financing method either. The unevenness in the implementation of fiscal equalization is additionally emphasized by the diversity of approaches in assessing the fiscal capacities and needs of local units (Bajo and Primorac, 2013, p. 87). Decisions on criteria and instruments for mitigating local fiscal inequalities are the responsibility of individual states, that is, national bodies. All countries that joined the EU retained autonomy in determining the instruments and criteria for fiscal equalization. With the accession to the EU, the national policies of the new member states in all important aspects mostly converged with the good practices of the old members. For now, the European Union does not envisage the obligation to harmonize national policies of fiscal equalization (as is the case with certain segments of taxation policy), but the European Charter on Local Self-Government foresees assistance to financially weaker local units with the aim of correcting the effects of unequal distribution of potential sources of financing and financial burden. In addition, in separate documents, the Council of Europe has given recommendations for the implementation of equalization policy at national levels, which are not binding for now. EU countries differ in the intensity and trend of fiscal decentralization, and the coefficients of variation do not indicate the existence of harmonization trends. Fiscal decentralization and fiscal equalization policies in old EU member states are relatively more stable, but more uneven, than in new member states (Bajo and Primorac, 2013, p. 88). Due to the lack of consensus regarding the optimal arrangement of the system, a greater number of different forms of equalization appear.



The structure of the fiscal equalization system is analyzed separately for old (EU 15) and new (NEU 12 and Croatia) member states based on grouping according to the number of lower levels of government, so we have countries with one, two, three and more lower levels of government (Bajo and Primorac, 2013, p. 79). It is very difficult to make a comparison, given that current aid from the central government budget can include other fiscal instruments that are not directly intended for equalization, while fiscal equalization instruments can also rely on other forms of aid that are not covered by current aid from the central government budget. The old EU members went through the process of fiscal decentralization earlier than the new member states. Accordingly, fiscal equalization mechanisms are used in all EU 15 countries. With regard to the goals, most fiscal equalization systems are based on the equalization of fiscal capacities and fiscal needs (in as many as 11 countries, while in two countries, Spain and the Netherlands, only inequalities in the fiscal needs of local units are mitigated, and in the remaining two, Greece and Belgium, only differences in fiscal capacities. Tax revenues are mainly used to equalize fiscal capacities. The system of balancing fiscal needs in EU 15 countries is mostly vertical. Horizontal equalization of the fiscal needs of local units is present only in Sweden. Some countries establish an equalization fund that finances the local units themselves, which ultimately has horizontal equalization effects (Bajo and Primorac, 2013, p. 85). In the group of new EU member states, the situation is even more uneven, since some countries do not have a fiscal equalization system at all. Equalization of fiscal capacities is mainly financed vertically (except in Latvia where it has both horizontal and vertical components). The representative tax system, estimated revenues (tax and non-tax), realized revenues and formulas are equally used for the assessment of fiscal capacity. Mitigating differences in fiscal needs is mostly vertical, although horizontal financing of the system occurs more often than mitigating differences in fiscal capacities (Bajo and Primorac, 2013, p. 86).

### **8.1. Fiscal equalisation in Slovakia**

Like Croatia, Slovakia is a country in transition and development. Since 1989 the Slovak Republic has carried out a comprehensive reform of public administration, on which decentralisation has been a key element. In Slovakia there are three levels of fiscal government-state, region and municipality and each has its own elected officials, distributed responsibilities and liabilities. Most of responsibilities for personal social services such as education, social welfare and services stayed with central government together with social insurance funds. Tax sharing system in Slovakia, is an important tool of horizontal fiscal imbalance equalisation. Shared taxes actually play the role of unconditional grant even if they are formally labelled as local government own revenues under current legislation (Capkova and Roncakova, 2014, p. 376). Years 2002-2003 brought the next stage of devolution represented by a fundamental change of responsibilities. The core was the transfer of more than 400 powers from the state administration to municipalities. The transfer of executed competence from the public administration bodies to the municipalities and regional government was accompanied by a significant devolution of expenditure responsibilities from the centre to sub-national governments in the areas of education, social services, roads and health care. Municipalities and regional government are responsible for performing their tasks with resources from their own budgets. Assignment of expenditure responsibilities to local and regional governments has been also accompanied by the emergence of fiscal imbalances between sub-national government budgets (Capkova and Roncakova, 2014, p. 378). However, own revenue cover only 30 percent of municipal current expenditure and even less than 20 per cent of regional current expenditure. From a fiscal federalism perspective the high vertical fiscal imbalance has been (only partially) resolved by conditional grants as well as mechanism of tax sharing. There is a system of intergovernmental specific-purpose grants, to finance specific spending programs which represent around one third of municipal budgets.

The main grant is for education, allocated on a per pupil basis. Other earmarked transfers are provided for public housing, public transport, and social care. In other words, these are decentralized functions that may vary slightly from country to country. The problem lies in the fact that these grants (although aimed at decentralized functions) are specific-purpose grants which directly collides with the European Charter of Local Self-Government. The principal intergovernmental transfer is the share of personal income tax, which is collected by the central state. The legislation has stipulated the share of the aggregated personal income tax that was redistributed from the state to respectively the regional government (23.5%) and the municipalities (70.3%). The remaining 6.2 per cent was kept by the state. Since 2012 the percentages of yield have been changed in favour of state – 65.4% municipalities, 21.9% regions, 12.7% state. The share for each subnational government is calculated on the basis of needs and former expenditures of the national government for devolved responsibilities. Sub-national government are free to use the revenue allocated, i.e. it is the unconditional revenue. A share of the national personal income tax is distributed to the local and regional governments based on the principle of horizontal fiscal equalisation, levelling out differences in potential needs; i.e. the share for each sub-national government is calculated on the basis of needs and former expenditures of the national government for devolved responsibilities. Formulas used for calculating the tax redistribution to a certain region/municipality are driven by population and population-related factors such as number of inhabitants, age structure, size, population density, etc. Tax sharing of the personal income tax has been taken for the decisive equalisation component in intergovernmental fiscal relations. It is essential to eliminate vertical fiscal gap but it is also supposed to include a horizontal equalisation effect, which is deemed to set off the expenditure inequalities. There are sharp regional differences across Slovak regions. The eastern regions have a much higher incidence of poverty, as economic activity is heavily concentrated in the west, particularly around the capital, Bratislava. Disparities are usually measured by regional GDP as an indicator of economic performance in a particular territory. (Capkova and Roncakova, 2014, p. 379)s

## **8.2. Fiscal equalisation in Germany**

Germany is a Western European developed country to which Croatia aspires in every sense of the word. There are three lower levels of government in Germany. In Germany, fiscal equalization is enshrined in the Constitution (Grundgesetz für die Bundesrepublik Deutschland, Article 104b), and it takes place after splitting revenues from shared taxes between the federal and Länder level in three successive stages. The goal of fiscal equalization is to compensate for differences in tax revenues and expenditures of local units. (Bajo and Primorac, 2022, p. 81) The redistribution criteria depend on the tax capacities and financial needs of each Länder. Horizontal redistribution is topped up by vertical redistribution from the federal government to further smooth per capita tax revenues among regions. These vertical grants became especially relevant as of 1995, when former East German Länder (as well as for some small former West German Länder) entered this scheme (Barrios, Martínez-López, 2016, p. 5). The German federal system has the explicit aim of providing sufficient resources to ensure equal access to public services by all Länder. Although fiscal equalization is topped up, the German territorial financing system is based on strong horizontal redistribution of tax revenues, especially through the redistribution of value-added tax revenues so that no single regional government has less than 95% of the average per capita budgetary resources. According to Federal Ministry of Finance of Germany the German fiscal equalization system is also focused on fiscal capacities (Barrios, Martínez-López, 2016, p., 18). In the German case, poorer regions tend to run significantly lower primary surpluses, because the German fiscal equalization scheme is largely focused on smoothing fiscal capacities.

Hence, poorer regions tend to run larger deficits, as they expect the federal government to fill their budgetary gaps. (Barrios, Martínez-López, 2016, p. 21)

## 9. FISCAL EQUALISATION IN CROATIA

The fiscal decentralization process in Croatia formally began in 2001. From that point revenue of local and regional self-government units significantly increased – from 4.8% of GDP in 2000 to 7.6% of GDP in 2020. The most significant source of revenue by far is from taxes (accounting for almost 60% of total), followed by administrative fees and user charges (over 15%) that relate primarily to utility fees and contributions. Received grants or transfers also have a significant share of over 15%. Personal income tax became a particularly important source of local and regional self-government units financing from 2007 onward. Since then, the central government has entirely renounced its own sharing in any revenue from personal income tax, but at the same time, it completely centralized the revenue from corporate income tax, which had previously been shared among the state, counties, cities, and municipalities. (Primorac et al, 2022, p. 536) Some say that shared taxes blur accountability: they do not award regions that have a smart fiscal and budgetary policy and they do not punish regions which perform poorly on both accounts. But they do facilitate the achievement of certain redistributive goals (Swenden, 2006, p. 125). Through these beneficial tax sharing arrangements, the government was trying to mitigate fiscal inequalities. The criteria for applying these instruments were predominantly based on geographical or historical features based on the beneficial status of the so-called areas of special national concern, hill and mountain areas, islands, etc., and not so much on economic and fiscal features. (Primorac et al, 2022, p. 534)

Period (d/m/yyyy)	Central government	County	City/ municipality	Decentr. functions	Equalization fund for decentr. functions	EU projects
1/1/1994 – 1/4/2000	70	5	25			
1/4/2000 – 1/7/2001	60	8	32			
1/7/2001 – 1/1/2002	29.2	8	32	9.8	21	
1/1/2002 – 1/1/2003	29.6	8	32	9.4	21	
1/1/2003 – 1/1/2007	25.6	10	34	9.4	21	
1/1/2007 – 1/7/2008		15	52	12	21	
1/7/2008 – 1/3/2012		15.5	55	12	17.5	
1/3/2012 – 1/1/2015		16.0	56.5	12	15.5	
1/1/2015 – 1/1/2018		16.5	60	6	16	1.5*
1/1/2018 – 1/1/2021		17	60	6	17**	
1/1/2021 –		20	74	6		

Table 1: Personal income tax sharing table in %

(Source: Primorac, M, Martínez-Vázquez, J, Arizti, P., 2022., *Law on Financing of Local and Regional Self-Government Units*, Official Gazette 127/17, 138/20, 151/22, 114/23 and *Income Tax Law*, Official Gazette, 115/16, 106/18, 121/19, 32/20, 138/20, 151/22, 114/23)

With the amendments to the Law on Financing Local and Regional Self-Government Units (OG 127/17), a simpler, more understandable and generally fairer system of distribution of personal income tax has been established. All personal income tax revenue is left to local and regional self-government units, and the distribution of personal income tax revenue is simplified by applying a uniform allocation scheme for all local and regional self-government units. There are no exceptions and all units are covered with the same (uniform) tax schedule, including those in hill and mountain areas, areas of special national concern and islands, as well as those in the supported areas that had previously enjoyed preferential treatment in the personal

income tax revenue sharing system. Currently, revenue derived from personal income tax is shared in such a way that 74% belongs to the municipality or city on a derivation basis (or where the tax is collected), 20% goes to the county in which the local government is located, whereas the remaining share of 6% is allocated (also on a derivation basis) to those local and regional self-government units that have taken over the financing of decentralized functions (elementary education, secondary education, social welfare, healthcare and firefighting – all functions that were decentralized after 2001), with different percentages for each transferred function.<sup>2</sup>

Elementary education	1.9 %
Secondary education	1.3 %
Social care	0.8 %
- centers for social care	0.2 %
- nursing homes	0.6 %
Health care	1.0 %
Firefighting (public fire departments)	1.0 %

*Table 2: Financing of decentralized functions*

*(Source: Law on Financing of Local and Regional Self-Government Units, Official Gazette 127/17, 138/20, 151/22, 114/23)*

Until 2018, funds within this category were used to finance equalization grants for decentralized functions. However, since 2018 the central government has taken over the equalization funding for decentralized functions leaving this share of personal income tax for funding the newly-established fiscal equalization scheme (Primorac et al, 2022, p. 538). The fiscal equalization system is now completely financed from the state budget, and that includes the equalization grants for decentralized functions (since 2018) and the fiscal capacity equalization system (since 2021). The appropriation of 1.5% of personal income tax for EU projects as well as the shares intended for capital projects for the development of the municipalities and cities in the hill and mountain areas and islands have been abolished. The funds for these purposes have been provided in the state budget from the general budget revenues since 2018 (Primorac et al, 2022, p. 539). Local and regional self-government units that are entitled to the funds of fiscal equalization are allocated a monthly payment (before the 15th day in the current month). The equalization transfers are non-earmarked grants from the central government budget. That means that local and regional self-government units have the freedom to allocate and spend the funds received for the purposes they identified as most needed. Fiscal equalization funds, in accordance with the provisions of the Law on Financing Local and Regional Self-Government Units, are provided in the state budget, and the share of fiscal equalization funds in the full amount for each municipality, city and county in the total fiscal equalization funds in the full amount is determined by the Minister of Finance by decision for each budget year. For the purposes of calculation and distribution of fiscal equalization funds, two parameters are important: the capacity of realized tax revenues and the reference value of the capacity of realized tax revenues. The Law specifically defines the capacity of realized tax revenues for municipalities and cities, and especially for counties. The Law also specifically defines the reference value of the capacity of realized tax revenues for municipalities, cities and counties.

<sup>2</sup> But it is very important to emphasize that the operational side of these functions is financed through personal income tax. When it comes to personal income of people employed or taking care of these functions, their income derives from state budget. Operational side includes mostly material costs (buildings, equipment, furniture etc.) in connection to performing these functions. (Jerković, 2017, p. 362)

The reference value of the capacity of realized tax revenues for municipalities, cities and counties for the year 2024 is as follows:

- 1) municipality 447.75 euros<sup>3</sup>,
- 2) cities 453.27 euros<sup>4</sup>,
- 3) county 64.58 euros<sup>5</sup>.

On the basis of Article 9 of the Law on the Financing of Local and Regional (Regional) Units of self-government (Official Gazette, 127/17, 138/20, 151/22, 114/23), the Minister of Finance makes a decision determining the share of fiscal equalization funds for an individual municipality, city and county in total fiscal equalization funds for the next calendar/fiscal year.<sup>6</sup> Interestingly, for 2024, according to the Ministry of Finance's calculations, there are only 77 (of 428) municipalities, 44 (of 127) cities and 6 (of 20)<sup>7</sup> counties outside the fiscal equalization system.<sup>8</sup> This confirms, on the basis of the current formula, a significant asymmetry or large disparities in fiscal capacity between local and regional governments with regard to the possibility of providing a comparable level of public services with a comparable tax burden across all local and regional self-government units (Primorac et al, 2022, p. 543). The aim of the described changes in the local and regional self-government financing system in the Republic of Croatia was to transfer powers, increase the level of responsibility and the scope of providing public services to the local level, while securing funds for their financing. It may have not succeeded entirely and there is a lot room for improvement but shared taxes are of great importance when it comes to satisfying not only fiscal goal of taxation, but social, economic and redistributive goals aswell. (Perić and Jerković, 2017, p. 324)

## 10. CONCLUSION

The goal of each local and regional self-government unit is to provide a satisfactory level of public service to its residents, it should be borne in mind that a large number of local and regional self-government units do not have sufficient own revenue to finance local public services. The task of the state is to provide an adequate fiscal equalization system that will absorb part of the funds that are missing. Setting up the extent of decentralized revenues and reflecting the extent of decentralized expenditure is highly sensitive issue.

<sup>3</sup> According to Article 3, Paragraph 3 of the Law on Amendments to the Law on Financing of Local and Regional Self-Government Units (Official Gazette, 114/23) the reference value of the capacity of realized tax revenues for municipalities is the five-year average of total income tax revenues that would be achieved in the territory of all municipalities by introducing the highest prescribed rate of income tax, which also includes the maximum amount of flat tax from tourism, per capita inhabitants of all municipalities, which is increased by 50% of the thus obtained value.

<sup>4</sup> According to Article 3, Paragraph 4 of the Law on Amendments to the Law on Financing of Local and Regional Self-Government Units (Official Gazette, 114/23) the reference value of the capacity of realized tax revenues for cities is the five-year average of total revenues from income tax that would be achieved in the territory of all cities by introducing the highest prescribed rate of income tax, which also includes the maximum amount of flat tax from tourism, per capita residents of all cities.

<sup>5</sup> According to Article 3, Paragraph 6 of the Law on Amendments to the Law on Financing of Local and Regional Self-Government Units (Official Gazette, 114/23) the reference value of the capacity of realized tax revenues for counties is the five-year average of total income tax revenues that would be achieved in the territory of all counties by introducing the highest prescribed rate of income tax, which also includes the maximum amount of flat tax from tourism multiplied by the share which belongs to counties based on the distribution of income from income tax, per capita of all counties.

<sup>6</sup> Decision for 2024 available at Ministry of Finance, Republic of Croatia, <https://mfin.gov.hr/UserDocsImages//dokumenti/o-ministarstvu/lokalna-samouprava/Odluka%20o%20udjelu%20fiskalnog%20izravnjanja%20za%20pojedinu%20op%C4%87inu,%20grad%20i%20%C5%BEupaniju%20u%20ukupnim%20sredstvima%20fiskalnog%20izravnjanja%20za%202024.pdf>

<sup>7</sup> Ministry of Justice and Public Administration (2024), <https://mpu.gov.hr/o-ministarstvu/ustrojstvo/uprava-za-politicki-sustav-i-opcu-upravu/lokalna-i-podrucna-regionalna-samouprava/popis-zupanija-gradova-i-opcina/22319>

<sup>8</sup> Table of LRGUs' share for fiscal equalization in 2024 is available at Ministry of Finance, Republic of Croatia, <https://mfin.gov.hr/UserDocsImages//dokumenti/o-ministarstvu/lokalna-samouprava/Odluka%20o%20udjelu%20fiskalnog%20izravnjanja%20za%20pojedinu%20op%C4%87inu,%20grad%20i%20%C5%BEupaniju%20u%20ukupnim%20sredstvima%20fiskalnog%20izravnjanja%20za%202024.pdf>

Economic, demographic, geographical and social conditions of the particular region or city have to be taken into account. Efficiency of fiscal equalisation can help curb fiscally induced inter-jurisdictional migration and labour mobility. States achieve efficiency through two types of fiscal equalisation. The horizontal fiscal equalisation is based on the solidarity principle and tax sharing arrangement taking a number of need criteria into account. On the other hand vertical fiscal equalisation relies on governmental grants from central government aimed at local and regional self-government units in need. The importance of fiscal equalisation is highlighted not only by its extensive use in both federal and unitary countries, but also by the fact that its objectives and principles are often laid down in the constitution and hence form a central pillar of national fiscal policy. The strong interplay between the political system and intergovernmental fiscal relations of each country (regardless of whether it is federative or unitary country) requires that equalisation is not assessed on technical grounds only. A closer look at the political economy constraints must be taken into account. This means that fiscal equalization largely depends on the situation on the political scene of an individual state, even though ideally it should not. But harsh reality is that political interests are key in explaining the allocation of intergovernmental grants. Detailed analysis of fiscal equalisation of a particular country will always, as will other issues of fiscal federalism, require a great deal of country-specific knowledge. Reforms of fiscal equalization systems should thus be accompanied by reforms on the local and regional tax policies with intention of making regional governments more accountable for their own fiscal policy choices on both the expenditure and revenue sides. Fiscal equalisation should cover the main sub-national taxes and public service responsibilities in order to prevent jurisdictions from setting taxes strategically or core services from remaining structurally underfunded. The first priority of fiscal equalisation should be disparities in revenue-raising capacity, because the data show that disparities in revenue-raising capacity across jurisdictions are much greater than those in service cost. But in order to improve transparency, fiscal equalisation should be clearly separated from tax sharing and other intergovernmental grants whose purpose is not redistribution. Also, donors and recipients should be clearly visible. The impact and effects of equalisation should be regularly monitored in the best case scenario by a politically independent body. No matter how it is arranged, the system of fiscal equalization does not have to completely alleviate the differences in the fiscal capacities and/or needs of local units. On the contrary, a certain lower level of inequality is even desirable. In the case of a full equalization system, the fiscal capacities and needs (or both) of local and regional self-government units are reduced to the level of the national average (in the case of a horizontal equalization system) or to the level of the best local unit (in the case of vertical fiscal equalization). An alternative to full is partial fiscal equalization where inequalities are mitigated. Fiscal equalisation should represent a safety net, but not to the extent where the local and regional self-government units completely surrender and stop working on their fiscal growth.

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## ROLE OF MARITIME ENGLISH IN MANAGING A VESSEL

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### ABSTRACT

*English is often referred to as the international language used for education, academic purposes, business objectives, etc. This is increasingly true as international trade expands every year and countries come into contact with each other. English has also become the main language in the maritime industry. Maritime English (ME), as a type of English for Specific Purposes (ESP), differs from other languages in that teaching and research are based on specific international legal procedures. The aim of this paper is to emphasise that seafarers need to acquire communication skills effectively and efficiently according to specific rules, as good communication skills affect personal and professional life. Communication can be done in many ways, but the most important method for operational communication is speaking. Firstly, misunderstood communication can lead to accidents at sea. Secondly, English can strengthen teamwork on board, improve seafarers' communication skills and increase safety at sea.*

**Keywords:** *Maritime English, ESP, SMCP, legal requirements, team management*

### 1. INTRODUCTION

Communication on ships has proven to be a crucial factor for safe navigation. This becomes especially evident when a maritime accident occurs. Examples of such situations are catastrophic evacuation procedures during mishaps like those of the large passenger ships Sewolf and Costa Concordia. Research indicates that communication issues alone cause nearly half of all maritime accidents, while incorrect communication protocols are the primary factor in almost all ship accidents [8]. This paper addresses the differences among regulations, types, and modes of expression, as well as the purpose and necessity of communication in maritime English. Understanding and properly using maritime English during the exchange of information on the bridge, in the engine room, and other departments on the ship is of utmost importance because most maritime accidents are caused by human error resulting from poor communication among the crew [10]. Hence, manuals and books are essential, teaching and guiding the correct way to exchange information in maritime English. We live in an era of expansion for multinational and multicultural shipping companies and crews, operating in a specific, complex, and extremely dynamic environment where even a small misunderstanding in crew conversations in maritime English can lead to significant consequences [12]. Deviations in expression due to different native languages often lead to the most significant misunderstandings and subsequently affect expression in English.

## **2. MARITIME ENGLISH**

Looking through historical maritime documents up to the present day, the English language has emerged as the dominant language used in maritime affairs. In certain situations, English is the only language through which communication is possible in the growing global maritime industry. A strong command of English is essential, not only for the advancement of maritime employees or seafarers in this profession but also for their survival in the maritime field. The primary reasons for the constant development, learning, and improvement of the English language in maritime contexts are increased safety, protection of human lives at sea, safeguarding the maritime environment, and ensuring safe navigation on the seas [13]. English in the maritime sector has undergone changes throughout history, evolving and adapting to the industry's needs. Today, in addition to the spoken form, written English is also developed, serving as the language for most maritime documents: from cargo manifests, salvage contracts, charter parties, etc. Certificates of seafarers' competence and authorizations issued by port authorities are written in English. All international conventions signed by the Republic of Croatia are drafted in the English language. English is the means of communication among multilingual crews aboard ships. This form of English varies from standard English, and it is used for the exchange of various crucial messages [3]. The maritime English language can be divided into several segments based on its usage. There is maritime English for navigators, emphasizing clear, simple, and unambiguous communication with other vessels, shores, and individuals in daily situations [15]. It places significant importance on communication in crises and perilous situations, where a proficient command of English is crucial. Another segment where the English language is utilized in maritime affairs is in marine engineering, countering the stereotype that navigation has more significant demands for maritime English. Understanding the terminology of machinery parts in English is crucial for communication between the engine room and the command bridge, ensuring navigation safety. Additionally, all engineering reports and the implementation of activity protocols are written in English [14]. Furthermore, the use of maritime English extends into shipbuilding industries, maritime management, and similar domains. From a linguistic perspective, maritime English, in all its forms, represents a jargon version of the English language, preserving grammar while significantly abbreviating grammatically correct phrases to ensure clarity and speed in communication [2].

## **3. LEGAL REQUIREMENTS AND MARITIME ENGLISH**

Communication on board must be of high quality and as successful as possible. It is crucial to avoid ambiguous expressions that may lead to misunderstanding among the crew, potentially impacting the ship's safety. The International Maritime Organization (IMO) in 1977 (with an update in 1985) published the Standard Marine Navigational Vocabulary (SMNV), defining and harmonizing all words and phrases used in maritime communication on an international level [4]. This publication includes expressions used in communication between ships, coastal stations, during approaches to ports, and when navigating through channels and straits. Special emphasis is placed on expressions and verbal communication in cases of danger and perilous situations. Under the leadership of F.W. Weeks, research was conducted as part of the SEASPEAK project, investigating the impact of SMNV and the practicality of implementing this document in maritime communication in English [7]. Various linguistic areas from which SMNV users originate were taken into account during the study. With the advancement of information technology, telecommunications, and maritime transport, it became evident that SMNV had too many limitations and represented a constraint on navigation. This fact highlighted the need to refresh the vocabulary and make significant changes in maritime communication. Under the guidance of Prof. Peter Trenkner, PhD from the University of Wismar, comprehensive research on maritime communication was conducted, involving

maritime experts and professors of maritime English. Several editions of manuals titled Standard Marine Communication Phrases were issued between 1997 and 2001. After a testing period in coastal navigation and in collaboration with Vessel Traffic Service (VTS) centres, the International Maritime Organization, in 2001, officially replaced the old SMNV 1977/1985 with the new IMO SMCP 2001 through Resolution A.918(22) [9]. The accuracy of communication between a ship and the shore, among the crew on board, and between vessels must be excellent, straightforward, and unambiguous. This is crucial to avoid misunderstandings that could lead to perilous situations. Moreover, with the increasing number of ships and types of maritime traffic in international navigation, there is a growing multinational crew with different native languages, leading to increased possibilities of misunderstandings [8]. In 1997, during its 68th session, the Maritime Safety Committee (MSC) accepted the Draft Standard Marine Communication Phrases formulated by the Subcommittee on Safety of Navigation. Following the trial application, the draft IMO SMCP 2001 was amended at the 46th session of the Subcommittee on Safety of Navigation. After adopting the comments, the draft IMO SMCP was finally reviewed at the 74th session of the MSC. In November 2001, Resolution A.918(22) by the IMO Assembly adopted the Standard Marine Communication Phrases (SMCP 2001), and the official international abbreviation IMO SMCP 2001 was approved [9,10]. According to the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers of 1978 (IMO STCW 78/95) with amendments in 1995, candidates for officer of the watch certification on ships of 500 GT and above are required to be capable of using and understanding IMO SMCP 2001. In practice, this meant additional education in the field of English for Specific Purposes (ESP) for a large number of seafarers [9].

#### **4. STANDARD MARINE COMMUNICATION PHRASES**

The International Maritime Organization's Standard Marine Communication Phrases (IMO SMCP) were established for the following reasons: [9]

- to enhance maritime safety and the safety of ships at sea.
- to standardize the English language used in communications at sea, port approaches, navigational passages, and on vessels with multilingual crews.
- to assist maritime educational institutions in seafarer training.

The defined Standard Marine Communication Phrases in the SMCP meet the requirements of the Standards of Training, Certification, and Watchkeeping (STCW) Convention of 1978, as amended, and the Safety of Life at Sea (SOLAS) Convention of 1974, as amended, concerning language communications. This speaks to the alignment and compatibility of various maritime documents in terms of expression and interpretation of activities. Therefore, the SMCP expressions should be used frequently, included in all seafarer educational programs worldwide, and given preference over other means of expressing similar meanings. All SMCP expressions are based on the English language and are applied for oral information exchange among members of all maritime nations globally. This is particularly crucial in situations where there is doubt about precise meanings and translations, which is becoming more common due to multinational crews in maritime operations [9]. Depending on their application, the SMCP expressions are divided into external communication phrases and on-board communication phrases. They are categorized into Part A and Part B based on their level of importance established by the STCW Convention of 1978, as amended [9,10]. Part A encompasses expressions used for external communications and is considered a replacement for the Standard Marine Navigational Vocabulary from 1985, the use and understanding of which are required by the STCW Convention 1995, Table A-II/I.

This part has been supplemented with important expressions related to vessel handling and navigational safety used in ship-to-ship communications. It is particularly crucial when a chart is present on the bridge, according to Rule 14(4), Chapter V of the SOLAS Convention of 1974, as amended. Part B refers to additional expressions intended for safety communication onboard. It serves as a complement to Part A and can also be beneficial for teaching maritime English language. Standard marine expressions do not necessarily need to be grammatically correct but should be clear and consistent with the English language [16]. Familiarity with the expressions in Part A is an essential part of the curriculum necessary to meet the requirements of the STCW Convention of 1978. Seafarers should adhere to the expressions in Part B, which align with the communication requirements and protocols defined according to the STCW 1978 Convention. Practicing these expressions and protocols just before use is recommended. It is especially crucial to align the theoretical learning aspect with practical training to reduce the learners' burden and achieve the most effective knowledge acquisition and qualifications for specific maritime activities. The SMCP expressions employ simplified versions of maritime English to avoid grammatical, idiomatic, and lexical differences [7]. Hence, a basic understanding of the English language is necessary for successful utilization of the SMCP. Accordingly, simple language formulations are used in practice for easier application and to reduce misunderstandings in communication, especially during information exchange from ship to ship, from shore to ship, and similar scenarios. Therefore, in stressful situations and under significant pressure, when there is limited time for information exchange, simplified expressions with significantly reduced or even no use of proper grammatical English words are present and used. In maritime practice, it is common to omit words such as "is/are," "the," "a/an," and similar ones. The other features of communication in maritime can be summarized as follows: [9]

- avoidance of homonyms
- avoidance of shortened (grammatical) forms
- responding with full sentences to questions that require a "yes" or "no" answer, or using full sentences as alternative responses to questions
- using one expression for one event

## **5. MARITIME ENGLISH FOR SEAFARERS**

Maritime English language for seafarers represents the foundation of their profession as they use it daily throughout their stay on board. Furthermore, during their work on the ship, the language continuously evolves, which is the best way to master maritime English. In the initial stages of learning maritime English for a seafarer, they become familiar with the ship, its appearance, construction, and ship sides, which are referred to as "port" and "starboard" instead of "left" or "right". Further training acquaints the seafarer with the navigational marking system and safety objects, emphasizing the importance of recognizing cardinal and lateral marks. The training progresses to cover emergency messages, safety messages, and distress messages, teaching the correct way to write and articulate these messages [17]. The educational process involves learning collision avoidance rules at sea and their proper implementation. The program continues with an analysis of various types of cargo, their maritime transportation methods, and procedures to be followed in case of cargo damage or loss. This is followed by studying the procedures for cargo transport and reception in ports, as well as cargo delivery procedures. Therefore, understanding accompanying documents such as various types of bills of lading and contracts among parties involved in cargo reception, transportation, and delivery is necessary. Furthermore, the procedures during a ship's arrival and departure from the port are examined.

Subsequently, the curriculum includes learning financial management procedures in cargo transportation organizations and understanding fundamental supply market models in maritime transport. It is also essential to master cargo and vessel insurance systems, contracts with suppliers and services, and to conduct risk analysis. The educational plan includes specialized terminology and standards that must be comprehended and implemented as needed. Consequently, clear utilization of specialized English language on the bridge is of paramount importance as the navigation of the ship, cargo operations, and collision avoidance at sea are conducted strictly according to internationally prescribed communication rules and procedures. The role of a deck department is vital for a merchant ship as it is responsible for navigation, manoeuvring, safe handling of the vessel, communication between the ship and shore, cargo handling and delivery, working with life-saving appliances, etc. The chief officer, as the highest-ranking deck officer, holds complete responsibility for cargo handling procedures and the efficient operation of the vessel. He is supported by educated junior deck officers whose duties are aligned with certified training for specific roles depending on their tenure on board. The chief officer and junior deck officers work as a team to ensure proper workflow and ship safety [11]. As part of the team involved in daily ship activities, deck cadets assist and learn from deck officers on their tasks. Becoming a cadet signifies taking the first step in a seafaring career. Deck cadets enter a training program lasting between 18 months to three years, with a significant portion spent at sea. During this period, they receive intensive training for working on board and gain professional experience [10,11]. An essential part of cadet training, as well as the future deck officer, involves learning and mastering maritime English. As the maritime industry advances, the need for comprehensive knowledge in all aspects of maritime English grows. Advanced communications, increasing presence of mobile applications, software management of ship navigation systems, all necessitate continuous improvement in professional English skills. Young sailors are faced with mastering the management of such complex systems and integrating maritime English into all aspects of life. Crew members need to communicate in English, ensuring crew integrity and good collaboration. The issue of communication among multilingual and multinational crews is gradually dissipating, paving the way for team collaboration. Often, English is not the native language of young sailors, making it challenging to understand experienced officers who communicate in English during their first embarkation on merchant ships. However, with continuous learning, this hurdle is overcome. Moreover, experienced officers might not always speak perfect English, which, over time, becomes less of an obstacle. As it is known, most maritime accidents occur due to human errors, often stemming from poor communication. This results from the lack of use of standardized maritime English that all crew members should be proficient in, with particular attention paid to young sailors. Since the concept of a crew with a single nationality no longer exists in the global shipping industry, correct communication can only be achieved through the use of maritime English. Hence, special emphasis should be placed on educating young sailors as they tend to be more prone to mistakes. According to the STCW Convention, a navigation officer is expected to demonstrate adequate knowledge of the English language, which is a requirement for performing their duties and responsibilities. This includes various activities such as using charts and other nautical publications, understanding meteorological data and forecasts, interpreting messages related to ship safety, communicating with other vessels in the vicinity, interacting with coastal stations and VTS centres, and conducting officer duties with a multilingual crew, including understanding and using IMO Standard Marine Communication Phrases [1,7]. The STCW Table A-II/I (as per the latest amendments, Manila 2010) also outlines the knowledge, comprehension, and necessary skills for internal and external communication aboard the ship.

Throughout the education and training process, a navigation officer acquires competencies for a range of functions, enabling them to:

- Maintain safe navigational watch
- Monitor loading, unloading, and securing cargo during voyages and port operations
- Investigate and report any errors or damage in cargo spaces, holds, and ballast tanks
- Apply leadership and teamwork skills
- Utilize Standard Marine Communication Phrases.

Knowledge and application of communication in the English language are also essential in accordance with various situations on board. Therefore, it is necessary to: [1]

- Understand the principles of bridge resource management, including communication.
- Possess skills in establishing and maintaining effective communication during loading and unloading operations.
- Have the ability to educate and seek errors or incurred damages.
- Be capable of determining the ship's inspection dynamics to efficiently survey the entire vessel within a set timeframe.
- Identify the causes of corrosion in cargo spaces and ballast tanks and prevent corrosion by timely identification.
- Explain reliable methods for detecting faults and damages.
- Organize and apply efficient resource management, including effective communication on board and onshore.
- Utilize reporting in accordance with general ship reporting system principles following Vessel Traffic Service procedures.

The team communication on the bridge is a generic term referring to the spontaneous verbal interactions among nautical officers who are part of the team, i.e., the ship's crew. A significant portion of the bridge crew communication does not necessarily relate to formal business communication, as crew members also share their life circumstances during their stay on the vessel. Consequently, bridge team communication differs in terms of team composition, communication channels, scope, and content. Teams on ships are almost always multinational and multicultural, closely collaborating and sharing the shipboard environment [5,12]. On merchant vessels, the bridge teams typically consist of the captain or master of the ship, the first, second, and third navigation officers, and the helmsman. Crew members work in shifts that cover the vessel's operations twenty-four hours a day, seven days a week. Depending on the type of vessel and area of operation, shifts of four or six hours are common. Due to this organizational structure, two to three individuals usually work together during a shift, after which the team composition changes. A single officer, not necessarily the highest-ranked, holds the Command of Navigation (CoN) and is therefore responsible for all decisions made and actions taken during each watch [5,6]. While bridge team members engage in face-to-face communication to assess situations and make decisions, they also communicate via UHF radio with other crew members located in different areas of the ship, such as the engine room, deck, etc., thereby extending the bridge team to a distributed team. Communication also takes place via VHF radio with Vessel Traffic Service (VTS), tugboats, and other vessels, and sometimes through satellite or mobile phones with shipping companies, agents, and other individuals ashore. This creates a broad virtual environment. If no common language is available, the International Maritime Organization (IMO) mandates that crew members communicate in English as the "lingua franca" [1].

## **6. TEAM MANAGEMENT**

Timely and effective communication within a ship's crew is crucial for ensuring safe navigation. Those on navigation duty bear immense responsibility when functioning as a bridge team. The adage "two heads are better than one" holds true, and numerous human factors necessitate the formation of a cohesive team [14]. However, merely assembling a group of individuals on the bridge does not inherently create a successful team. Skills and the willingness of each member to foster quality collaboration and communication among team members are essential. It is crucial for every team member to develop interpersonal relationships to achieve efficient ship management. Communication, broadly speaking, is the key to success. It is pivotal within the team forming the watch, during watch handover, and in interactions with the engine room and all operational areas onboard. In the global maritime industry, people from diverse backgrounds collaborate. That is one reason behind the creation of the STCW Code for proficiency in written and spoken English [7]. Therefore, communication within and outside the vessel should be harmonized and executed to achieve optimal performance and safety. Clear and unambiguous transmission of necessary information is of paramount importance.

## **7. CONCLUSION**

In the past twenty years, maritime traffic has significantly increased, leading to a growing demand for diverse maritime professionals. This has prompted the need for specialized forms of education to ensure the competitiveness of shipping companies in the global market. In light of this trend, there is a heightened emphasis on learning, developing, and mastering maritime English, which not only maintains high business standards but primarily ensures the safety of navigation, crew, and passengers. As a result, new regulations and standards related to proficiency in maritime English have been continuously introduced across all sectors of maritime operations, at all levels, starting from seafarers embarking on ships for the first time to the highest-ranking officials. Rules governing the use of maritime English aim to achieve consistency in operations and management in challenging situations, especially during risky activities that are sometimes unpredictable, such as varying weather conditions. Significant emphasis is placed on communication methods aboard ships, taking into account the multinational nature of crews and the diverse cultural characteristics of seafarers. Breaking communication barriers among crews establishes the foundation for successful navigation, safety, and competitiveness on the world's seas. In today's world, the English language is an indispensable part of people's everyday lives and is used in various fields. In maritime settings, English is of crucial importance because a good command of it can prevent various accidents or errors, which are often caused by poor communication. Advancement in the maritime industry is nearly impossible without a grasp of the English language. Studying maritime English in various maritime activities defines the terms used and contributes to the development of manuals and protocols in different maritime sectors. Surprisingly, the majority of maritime accidents are caused by human error rather than external influences, as commonly believed. Human errors often stem from underestimating dangers and from poorly conveyed observations and information, indicating ineffective communication. Therefore, the English language is an indispensable part of a seafarer's workday and the quality execution of daily tasks aboard a ship. It can be concluded that the English language is a prerequisite for the successful work and advancement of every seafarer, and it should be understood as a means of overcoming various work-related difficulties, mastering crisis situations, ultimately ensuring the safety of passengers and crew.

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## MAPPING THE CURRENT SITUATION IN THE FIELD OF ICT UTILIZATION IN HR IN SLOVAK COMPANIES

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### ABSTRACT

*Nowadays, it is essential for companies to use numerous information and communication technologies that support their activities in basically every field and department. The field of HR is no exception. This article focuses on the utilization of ICT solutions in companies to support personnel processes and activities. The goal was to map the current situation of the researched area in practice. The collected primary data represent a pilot survey within the conditions of companies in Slovakia. The applied methods of processing and analysing the collected data included mathematical-statistical analysis, induction, deduction, synthesis, and modelling. Due to the questions included in the survey, it was possible to assess the importance*

*of ICT and its impact on HR management in various types of companies. Those technologies that managers consider to be commonly used or new and inspiring were also identified. The results of the analysis led to the proposal of recommendations for achieving the efficiency of HR processes via the implementation of the right ICT solutions.*

**Keywords:** *Information and Communication Technologies, Information System, Human Resources, Personnel Processes*

## 1. INTRODUCTION

In today's digitized world full of innovations, there is significant development of information and communication technologies (ICTs) in the field of company management. Based on this fact, companies must use all their resources and experience to gain an advantage over the competition in the market. Only this way they will be able to adapt to changes in the integration of technologies into their regular operations (Uçar, 2022). In the field of human resources (HR), HR professionals must perform constant analyses focused on the opportunities of the social, economic, political-legal, and technological environment. These are the key factors in the success of the creation of the company's strategy and goals. To be able to respond to the identified challenges, it is necessary for companies to increase the efficiency of human resource management (HRM) using ICTs. It can be increased via more suitable, innovative methods in the process of recruitment and communication or when involving employees in decision-making. Even this way, it is possible to improve the skills of HR personnel in the field of ICTs. These activities have an impact on the appropriate setting of the human resource management strategy with the most suitable technological solutions. Thus, companies must be able to use ICTs in such a way so that they can achieve their set overall goals as well as the goals in the field of HRM (Silva, Lima, 2018). The introduction of ICTs in the field of HR replaces the paper system of records, which was much slower and significantly inaccurate in the final outputs. The primary advantage of using ICTs in HR is the easier access to obtaining, storing, analyzing, searching, and disseminating information. They also allow HR professionals to constantly monitor information about employees stored in various databases, and thus also connect individual databases within one company (Matimbwa, Masue, 2019). Additionally, it also has an impact in the form of reducing operating costs, improving decision-making processes, supporting social cooperation, payroll management, creating detailed employee records, etc. All this is done based on fast, accurate, and complete pieces of information processed using ICTs. These points ultimately increase overall productivity and represent an important aspect of overall company management (Zhou et al., 2022). The level of ICT use in Slovak companies is currently quite diverse and depends mainly on the size, industry, and technological focus of individual companies. However, in the case of large companies and corporations, the utilization of ICTs is essential for their operations. The assumption is that they use them for various purposes, ranging from human resource management and process automation to improving communication and achieving competitiveness. Large corporations often have extensive information systems (ISs). On the other hand, small and medium-sized companies in Slovakia are starting to recognize the potential of ICTs in HR only gradually. It is assumed that the level of ICT use for HR support is at a low level in these companies. The main challenges, especially in small and medium-sized companies, include the lack of funds and technological resources for the full implementation of digital transformation. Following the identified problem areas, the purpose of this article was also defined in the form of identifying and describing the current situation of using ICTs to support HRM. The description will also be derived from the results of the analysis of theoretical background and will be based mainly on the results of the author's pilot study.

The recommendations, presented at the end of the article, will provide essential pieces of information about how and whether ICTs contribute to the competitiveness of the addressed Slovak companies and how companies can better use ICTs in HRM to their advantage.

## **2. THEORETICAL REVIEW**

This chapter reviews the theoretical knowledge on human resource information systems (HRIS) and ICT solutions in companies. Due to the information collected, the intersection of these two topics was described and their subsequent impact on the companies' operations was identified.

### **2.1. HRIS**

The quality of information plays a key role in the process of performing and managing activities in companies. The ability of companies to acquire, store, maintain, and use personnel information is an integral part of effective human resources management. Via the use of HRIS, HR managers and senior employees can obtain key information. These are used in the decision-making process, e.g., within the processes of recruitment and selection of employees, evaluation of work performance, creation of salary policies, and the employees' development (Panjataan, 2023). Every company should have a system for collecting and storing data related to human resources. Due to HRIS, this data is then converted into useful information and made accessible to relevant stakeholders. According to Panjataan (2023), this system represents a systematic procedure for collecting, storing, maintaining, making available, and validating data necessary for improving decisions in HRM. Various authors clearly highlight that HRIS is not only a computer system that ensures the collection and management of information about human resources but is a complex system including people, processes, policies, and data. This system is a key tool for automating numerous functions in human resources management while also becoming a strategic asset for obtaining, managing, and analyzing information for decision-making processes (Nagendra, 2014). Another essential point that managers should think about is the very importance of HRIS implementation within the overall company strategy. Negendra claims that HRIS can be a key strategic resource for a company, not only in the short-term and medium-term but also in the long-term perspective. It also draws attention to the importance of ensuring consistency between the HR strategy and the overall strategy of the company and the need to take care of the protection of sensitive employee data within the aforementioned information system. Top-level managers should ensure that HRM strategies are thoroughly analyzed and planned. They should also be in line with the company's business plan and information systems plan (2014). HRIS is often presented as a key tool in human resource planning, employee training and development, performance evaluation, and implementation of strategic initiatives. Ammupriya claims that HRIS offers opportunities to gain information about the company and public institutions, which subsequently help measure performance (of individuals or groups). He also emphasizes the importance of technological progress in the context of HRIS (2022). The use of information systems and the focus of work activities and motivational factors have a significant impact on the performance of employees. Several authors point out that the HRIS is closely linked to the performance of employees and their overall satisfaction. It is important to develop HRIS at the strategic level in companies so that top managers actively support and demonstrate the importance of this system for the successful operation of the company. A systematic approach to HRIS implementation is therefore essential (Ammupriya, 2022; Fu et al., 2022).

### **2.2. ICT solutions**

The rapid development of ICTs has resulted in the gradual replacement of manual systems for managing company processes. Within the production sector, it is possible to implement ICT solutions with the effect of increasing productivity and production quality.

This situation is transforming the industrial sector, causing the creation of a competitive advantage in the market. This way, ICT also contributes to the achievement of the strategic goals of companies. Currently, there are numerous commercial software solutions for production management that automate processes, improve operations, or increase the transparency of the supply chain. Companies need to keep up with the competition, so they are constantly adapting to the market and becoming more innovative and smarter than before. They use ICTs to improve performance, which also gives them a higher ability to dynamically manage interactions with the environment (Ciric, 2020). Smart companies are based on knowledge management. As a result of the increasing development of technologies, the changing environment and the constantly growing influence of competition on the market, ICTs became popular in the 1990s. Smart companies focus on learning processes or the skills they create, acquire, or organize (Omazic et al., 2018). They also share knowledge and subsequently use it to increase efficiency and competitiveness on the global market (Navarrete, Valdés, 2022). It is also appropriate to pay attention to the attributes of smart companies, which include flexibility and speed of operations, the ability to observe the environment, and the implementation of new solutions to achieve certain economic advantages. The volume of information is constantly growing, and knowledge management is on the one hand a greater challenge, but at the same time, it is also becoming a key source of competitive advantage (Falcón et al., 2018). However, for the optimal operation of a smart company, it is necessary to make appropriate use of the ICTs solutions mentioned above. These enable, e.g., better coordination and integration of business partners within the supply chain due to virtual processes in ICT networks (Adamczewski, 2017; Veiga et al., 2021; Nazarov, Nazarov, 2023). ICT solutions in smart companies also play a pivotal role. They contain such components that transform the way the company communicates with customers.

The key components are (Adamczewski, 2017):

- Social media – they remove barriers in the flow of information between entities and become an effective tool for the rapid exchange of information and knowledge. They replace traditional methods of communication such as e-mail or telephone in the business sense. They also speed up problem-solving and the creation of a knowledge base based on user preferences.
- Mobile devices – devices that include smartphones and tablets. These smart tools make everyday life easier for users and offer space to get closer to customers regardless of time or place. Companies use them to develop an e-marketing strategy via mobile channels. However, both social media and mobile devices are also applicable in the personnel processes performed within HRM.
- Analytical tools – provide information on customer behavior and preferences. The collected data can be used via algorithms, which can result in an increase in customer loyalty or the overall marketing campaign.
- Cloud Computing – is a technology that provides effective tools for collecting data and subsequently managing it. Due to ICTs, companies can reduce costs or overcome geographical restrictions, gaining access to information anytime, anywhere. The cloud represents a connecting element that integrates the above-mentioned components into a specific strategy.

The introduced components significantly change the way companies operate, communicate, and interact with their customers. This makes them more efficient in today's digital age.

### **2.3. HRIS support via ICTs**

Based on the presented opinions about ICTs and human resource information systems, it was possible to interlink these two areas. Today, the rapid development of ICTs has a significant impact on the efficiency and effectiveness of HRM in various types of companies (Erman et al., 2022; Shen et al., 2023). The integration of ICTs into HRIS makes it possible to obtain and use important information about employees and their performance. ICTs provide the means to automate many HR processes (Trivedi, Pillai, 2020; Kholod et al., 2021; Turcu, Turcu, 2022). This is, e.g., the process of recruitment, selection, performance evaluation, or development of employees. This way, HRIS uses technology to manage human resources more effectively and contributes to an optimal decision-making process. In addition to automating processes, ICTs also ensure faster and more efficient access to information. This allows HR managers to make faster and more accurate decisions. For example, by analyzing data from HRIS, companies can identify patterns in employee performance and propose measures to improve employee productivity and satisfaction. ICTs also enable easier access to data and information for various stakeholders in the company. This contributes to better employee behavior and better human resource management (Afradi, Nourian, 2022). Overall, combining HRIS with other ICTs is an important tool for modern companies that seek to gain competitive advantage via more effective HRM and better utilization of data and information. This combination improves the performance of companies and helps them achieve strategic goals through a better understanding and usage of the employees' full potential (Themistocleous, Papadaki, 2022).

### **3. METHODOLOGY**

This study involves primary data analysis. Specifically, sociological inquiring in the form of a questionnaire survey was applied. The collection of data was performed online, and the results presented in this article represent a pilot study. The number of respondents involved in the pilot study is fifteen ( $n = 15$ ). Currently, the collection of answers continues, and other results associated with the new number of respondents will be included in other articles. The questionnaire was created following a thorough literature search and systematic collection of secondary sources from the field of ICTs use in HRM. However, before developing the questionnaire, a mind map was created, not only based on literature review but also combining the existing knowledge related to ICTs in human resource management. This map contained the key elements of the analyzed area and the relationships among them. It served as a starting point for the formulation of the questions in the questionnaire and for the analysis of the data obtained. The questionnaire survey was designed with the aim of obtaining relevant information from the respondents about the use of ICTs in the companies in Slovakia. Individual questions focused not only on ICTs, but also on its implementation in various aspects of human resources. Specifically, it was the recruitment, selection of employees, training, employee evaluation, and communication. The respondents who were approached to participate in the pilot survey represent a sample of companies or individuals in Slovakia who have practical experience with the use of ICTs in HRM. The questionnaire contained a total of 11 questions, which were designed to obtain comprehensive data on the use of ICTs within HRM processes in the companies addressed. These questions focus on various aspects, including the identification of specific technologies used in HRM, the evaluation of the effectiveness and importance of these technologies in companies, the evaluation of the benefits and challenges associated with the implementation of ICTs in HRM, a future perspective, and the possibilities of developing the use of ICTs in HRM. The type of questions in the questionnaire is diverse. Multiple-choice questions with predefined answers were included, as well as questions with scales, and questions allowing respondents to express their opinions freely. The entire questionnaire was designed with clear and understandable wording in mind to ensure consistent and reliable responses from respondents.

The information obtained via the questionnaire was processed using mathematical and statistical methods and tools. These methods enable quantification and analysis of relationships between different variables, such as frequencies and scale ratings. This way, it is possible to obtain clear quantitative data on the utilization of ICTs in human resource management and on the perceived benefits or challenges stemming from this. Furthermore, various thought processes were used in this article. One of them was synthesis. It can be described as a process of integrating and combining data from multiple sources. In the context of the presented pilot study, it enables the combination of information from various questions and aspects. Therefore, within the limits of the pilot study, it is possible to create a comprehensive picture of the utilization of ICTs in human resource management. This makes it possible to identify major trends and patterns within the data that can provide valuable insights into the researched area. Deductive methods were used to draw conclusions based on existing knowledge and identified patterns in the data. Based on the quantitative analysis and synthesis, it was possible to formulate general rules and conclusions regarding the utilization of ICTs in HRM. Deductive thinking is important in assessing data and making recommendations for practical applications within HRM.

## 4. RESULTS

This chapter contains the evaluation and interpretation of the pilot survey results. The collection of responses was launched in September 2023 and it still continues.

### 4.1. Evaluation – basic characteristics of the respondents

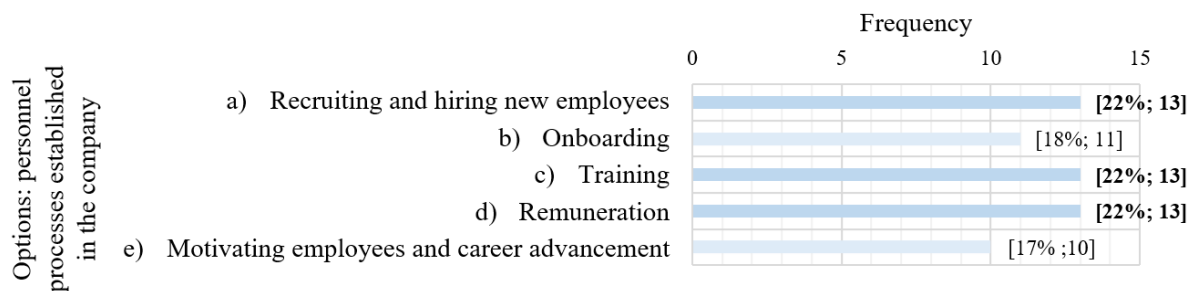
A total of 15 respondents (representatives of the approached companies) participated in the pilot survey. Participating companies included those that can be described as large. These were companies with more than 250 employees. More than 60% of respondents chose this option. The remaining 40% of respondents chose the category of up to 249 employees, which includes small and medium-sized companies. From the perspective of the companies' focus, the IT sector and telecommunications (33%) are the most represented within the industry, followed by services (trade, tourism, etc.) (27%). Other industries (three in total) achieved the same representation (7% each, total of 21%). Among the companies that participated in the survey, 47% are based (have their parent companies) in Slovakia, 40% are based in Europe, and the remaining 13% are based in America. The summary table of basic characteristics can be seen in the table below (Table 1).

Company size (based on the number of employees)	Freq.	Company sector	Freq.	Company ownership (headquarters)	Freq.
up to 249 employees (a. small and medium- sized companies)	40%	services (trade, tourism)	27%	Slovak headquarters – Slovakia	47%
		IT sector and telecommunications	33%		
		construction industry	7%		
		healthcare	7%		
250 or more employees (b. large companies)	60%	industry	7%	foreign headquarters – Europe	40%
		other: providing services for other parts of the company	7%		
		other: civil association	7%	foreign headquarters – America	13%
		other: education	7%		

*Table 1: Summary table of the basic characteristics of the respondents  
(Source: own elaboration)*

#### 4.2. Evaluation – key questions of the questionnaire survey

In addition to the basic characteristics, questions related to the personnel processes that the approached companies actually perform were investigated. Specifically, there were 5 defined processes: (1) recruitment, (2) onboarding, (3) training, (4) remuneration, and (5) the process of motivating employees along with career advancement. The results show that companies perform all five personnel processes to a high degree (Figure 1, the left number in the square bracket represents the relative frequency and the right number the absolute frequency). It can be stated that processes such as recruitment (22%), employee training (22%), and remuneration (22%) are considered standard and irreplaceable processes of human resource management in companies. On the other hand, processes of onboarding (18%) and motivating employees in connection with career advancement (17%) lag behind in the ranking. It is likely that they are not yet a full-fledged part of personnel processes in all the companies.



*Figure 1: Personnel processes performed in companies  
(Source: own elaboration)*

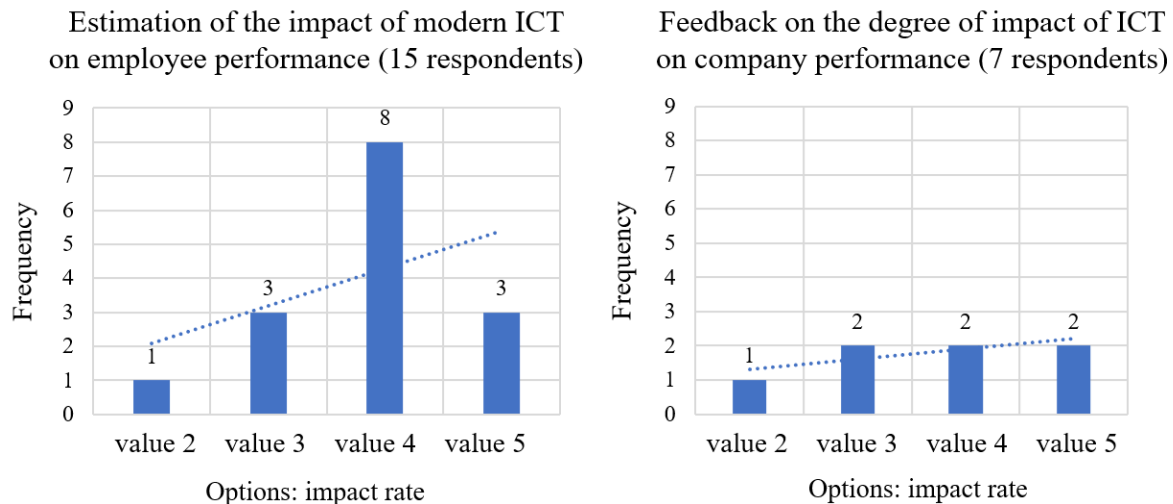
Furthermore, we analyzed the answers related in which human resource management processes a given company uses ICTs. Subsequently, a comparison of answers was performed according to the different sizes of the companies involved (a. small and medium-sized companies versus b. large ones). Table 2 shows the differences between the individual answers of small and medium-sized companies and large companies (more than 250 employees). The visualization shows that there are no or only minimal differences between the defined groups in the processes of recruiting and training employees. On the other hand, in the processes of onboarding, remuneration, and motivating employees, small and medium-sized companies use ICTs significantly less than large ones (2:4). From the summary, it follows that companies most often use ICTs in the management of personnel processes when recruiting and training employees.

Possibilities: use of ICTs in the personnel process	Frequency (a. up to 249 employees)	Frequency (b. more than 250 employees)
a) Recruitment (recruitment and selection of employees)	5	5
b) Onboarding (adaptation process)	2	4
c) Training	4	5
d) Remuneration	2	4
e) Motivating employees and career advancement	2	4

*Table 2: The use of ICTs in the management of personnel processes according to the company size  
(Source: own elaboration)*

Based on other findings, it can be stated that companies use either an internal software environment (their own personnel system, 47%) or a combined form of internal and external software environment (53% of respondents from the total number of respondents) to support

personnel processes with ICTs. It is also possible to claim that the majority of companies, 73%, know and are interested in new/trendy ICT technology, such as virtual reality, gamification, e-learning, etc. Other questions analyzed were related to the impact of modern ICTs on employees. Respondents could indicate their answer by choosing one number on a scale from 1 to 5 (1 = minimal impact; 5 = maximum impact). A graphical representation of the answers is captured in Figure 2. The left side presents the responses regarding the estimated impact of the introduction of modern ICTs on employee performance. The right side of the picture represents real feedback from those companies where ICTs have been implemented to support the given processes.



*Figure 2: The impact of modern ICTs on employee performance  
(Source: own elaboration)*

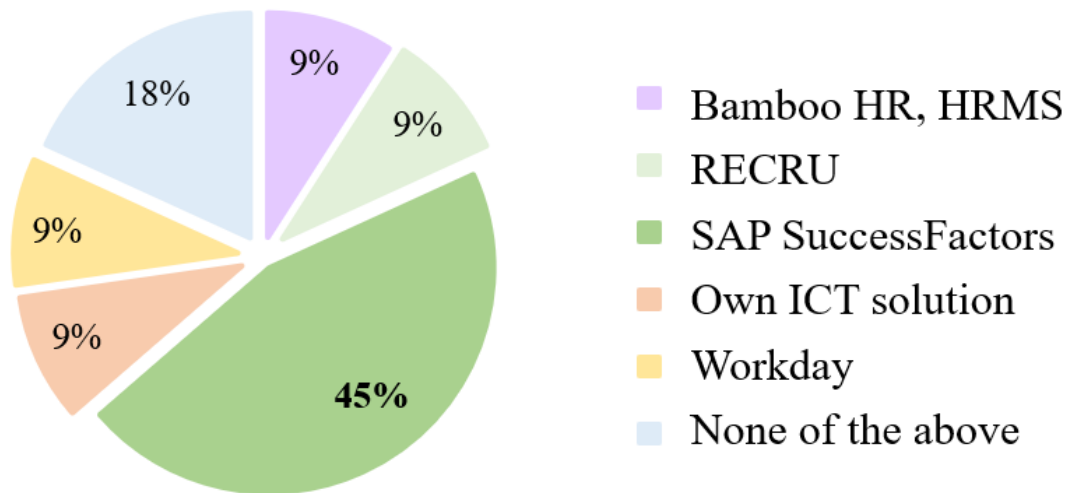
The analysis showed that the ICT tools used in companies, in the opinion of the respondents, influence the efficiency and performance of employees to a high degree (whether it is an estimated or real state). Respondents even stated in the open questions that the utilization of ICTs in their company not only leads to better performance but also supports their willingness to develop further. Only a small number of respondents consider ICTs to be unnecessary and of little benefit to the performance of employees (only 1 employee chose the value of 2). Table 3 shows the distribution of responses related to the impact of modern ICTs on employee performance by company size. Small and medium-sized companies most often reported a high impact (value 4). For large companies, the answers were not so clear. The individual answers of the respondents were divided between the values 3, 4, and 5 on the presented scale. Overall, however, it can be stated that companies perceive the impact of ICTs on employee performance as high.

Company size	Options: impact of modern ICTs on employee performance (on a scale from 1 to 5)	Frequency	Total frequency
a. up to 249 employees	value 2	1	6
	value 4	5	
b. more than 250 employees	value 3	3	9
	value 4	3	
	value 5 (maximum impact)	3	
Total number of respondents			15

*Table 3: The impact of modern ICTs on employee performance by company size  
(Source: own elaboration)*

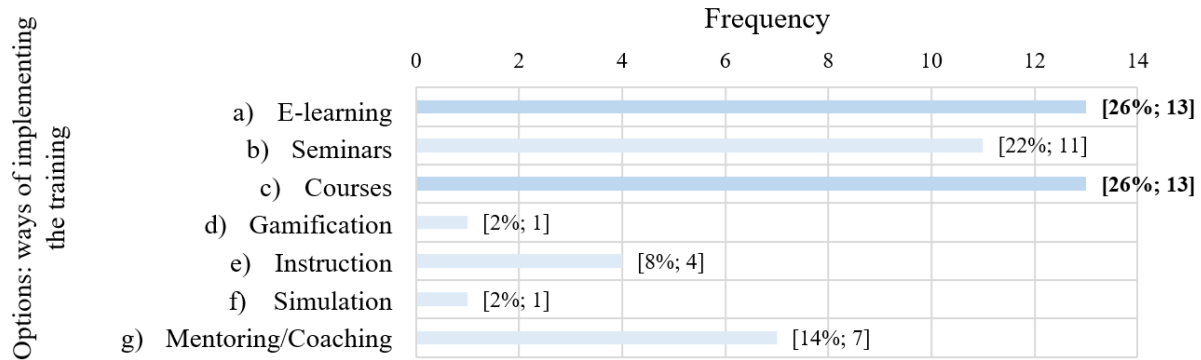


Respondents had the opportunity to indicate which of the ICTs for supporting personnel processes they know (have encountered or heard about). Up to 45% of respondents are familiar with SAP SuccessFactors (Figure 3). This software was chosen with the greatest percentage representation. In the case of Bamboo HR, HRMS, RECRU, and Workday, only a small percentage of respondents (9%) know them. However, a disturbing situation was also revealed, when up to 18% of the companies involved in the pilot study did not know any of the ICT solutions included. This situation represents room for improvement, when senior employees and HR managers could acquire new knowledge, skills, and experience in the field of utilization of ICT solutions to support personnel processes. A prerequisite is a high willingness of managers to participate in education with this focus, as in the previous question, most respondents stated that they consider the impact of modern ICTs on employee performance to be high (11 respondents out of 15). These statements are also supported by the fact that the respondents are looking for inspiration to get familiar with trends used in ICTs mainly from abroad (64%). The remaining 36% of the surveyed companies are primarily inspired by the domestic market.



*Figure 3: Knowledge of ICTs for managing personnel processes  
(Source: own elaboration)*

Based on a pilot study, the situation in the field of ICT use to support personnel processes in Slovakia can be described as follows. 64% of companies (which stated that they know at least one of the predefined ICTs) actually use at least one of them. These companies are therefore trying to perform tasks more efficiently and achieve goals in the field of HR with the support of ICTs. On the other hand, 27% of companies (which knew at least one of the defined ICTs) do not plan to use ICTs in the management of personnel processes. It can be concluded that this is a relatively high percentage of companies that are currently not considering the application of ICTs to support personnel processes. Only one respondent stated that the company plans to use at least one of the ICT solutions to support HR in the future. Subsequently, we focused on specific aspects of personnel processes in the form of training as part of employees' further learning and education. The intention was to discover whether companies use ICT support in this regard as well. In the surveyed companies, training is provided to the highest extent via e-learning (26%) and courses (26%). Seminars (22%), mentoring, and coaching (14%) are also among the preferred options (Figure 4). Gamification (2%) and simulation (2%), which represent new trending ICT tools, hardly occurred in the conducted survey.



*Figure 4: Method of training implementation  
(Source: own elaboration)*

According to the interviewed companies, new ICTs cause only mild stress among employees. However, it is possible to observe a gradual increase in stress and a tendency towards a higher level of technostress. Technostress was explained as an individual's inability to cope with new ICTs. It is a psychological condition that can arise as a result of excessive or inappropriate use of technology. Despite the fact that technostress in companies is gradually increasing, the majority of respondents confirmed the importance of using ICTs to support personnel processes and their positive impact on employee performance.

## 5. CONCLUSION

In the current digital environment, which is overflowing with innovations, ICTs are developing significantly even in business management. It is necessary for companies to use all available resources and experience to achieve competitive advantage and adapt to the dynamics of technology integration. Overall, it can be concluded that the implementation of ICTs in the field of HR represents a necessary step for companies that are striving for the achievement of a competitive advantage and effective management of their human resources in the current digital era. To meet these challenges, companies need to increase the effectiveness of human resource management through improved methods of recruitment, communication, employee participation, and the development of HR employees' ICT skills. The implementation of ICT solutions represents a revolution in HR, as it replaces traditional paper-based record-keeping systems that were slow and often inaccurate. A key benefit of ICTs in HR is the easier access to obtaining, storing, analyzing, searching, and distributing information. These technologies enable continuous monitoring of employee information in various databases and integrate data in the company. Additionally, they contribute to the state of reducing operating costs, improving decision-making processes, supporting social cooperation, improving payroll management, and creating detailed employee records. HRIS provides managers with the necessary information for decision-making processes being performed in HRM. The survey, which was mainly responded to by large companies from the IT sector and telecommunications, showed that ICTs are used the most in the personnel processes of recruitment, training, and remuneration. It can be argued that most of the surveyed companies are familiar with new ICTs for managing HR processes. SAP SuccessFactors is the most well-known system among companies. Companies get new inspiration mostly from abroad, where new trends in this area emerge more often. The pilot study also shows that the use of ICTs significantly affects the efficiency and performance of employees and the company itself. As for training in the approached companies, e-learning, various courses, and seminars are used the most. Most of the approached companies perceive ICTs as a necessary and beneficial tool in supporting HR processes, but they do not consider these technologies important for the needs of maintaining the company's competitiveness.

Furthermore, it was revealed that ICT tools not only affect the efficiency and performance of employees for the better but also motivate them to develop further.

Based on the analyses performed, it was also possible to design a set of recommendations for HR managers following the utilization of ICT solutions:

- It is necessary for managers to regularly perform competitors' analyses, due to which they will reveal the current state of using ICT solutions for HRM support among them, as well as the possibilities of implementing new ICTs.
- It is essential that HR managers also focus their attention on performing analyses of the efficiency, accuracy, and satisfaction with ICTs that are already implemented in the company.
- In the event of the company not yet using any HR system, managers should analyze the current possibilities of the company and the market so that a new system is introduced. Companies should implement HRIS to replace paper-based systems.
- In the case when the company uses a HRIS, managers should analyze the current possibilities of the company and the market so that the system is updated.
- In relation to the support of the education process, managers should focus on monitoring new ICT solutions to support it. New tools can thus improve employees' learning.
- Managers should constantly monitor the trends regarding the use of ICTs in HR, as it is obvious that these tools have a positive effect on the efficiency and performance of employees.

## 6. DISCUSSION

The necessity of implementing ICTs in companies is constantly deepening. The implementation of ICT solutions brings many advantages, such as easier access to information about employees, reduction of operating costs, but also more effective management of human resources. Increasing the efficiency of HRM can be achieved through the implementation of modern methods of recruitment, communication, employee participation, and especially development, education, and support of employee satisfaction. This statement is supported by Maier, who emphasizes the benefits of adopting new technologies in a company. According to him, the use of ICTs strongly integrates with job satisfaction and, conversely, with employee turnover (2013). As already mentioned, technologies are constantly evolving, therefore it is necessary to respond to these changes. Ammupriya says that the adoption of HRIS plays a very important role for companies in the current industrial environment. He mainly attaches great importance to the relationship between the adoption of HRIS and work engagement and well-being in companies. He also highlighted the importance of this technology from the perspective of education, where HRIS contributes to increasing the level of knowledge of employees and allows them to use time more efficiently for specific work tasks (2023). ICTs are gradually replacing traditional paper-based record-keeping systems, which largely consume time that should be used for other more important activities. Polgan also agrees with this statement, identifying the benefit of using ICTs in HR in increased efficiency of recruitment processes, automation of administrative tasks, and cost-effective training. He also emphasizes overall improvement in terms of security and integration of employee data management (2023). Sutikman et al. came to the conclusion that the implementation of ICTs in companies (primarily small and medium-sized ones) brings improvement in the field of employee management, compliance with the regulations and, above all, in strengthening competitiveness on the market (2023). The results of the pilot study confirm that the respondents perceive the positive impact of the implementation of ICTs in HR on the improvement of HRM, but they do not yet see the impact in the form of strengthening competitiveness.

The limitations of this study were also identified. The very focus on Slovakia and the companies that operate in this territory represents a narrowing of the scientific scope. In the future, the authors would therefore like to focus on expanding the survey to other countries as well. Another limitation of the article is the scope of the pilot study. As stated in the methodology, only 15 respondents, company representatives, participated in the conducted survey. In the future research, the authors would like to focus on obtaining a greater number of responses in the presented survey in Slovakia and, as already mentioned, subsequently also on expanding the survey to other countries.

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## PRIVATE REMEDIES AND PUBLIC SANCTIONS AGAINST TRADERS IN CASES OF UNFAIR CONTRACT TERMS AND UNFAIR COMMERCIAL PRACTICES IN CONSUMER CONTRACTS UNDER CROATIAN LAW

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### **ABSTRACT**

*Violation of the principles of conscientiousness and honesty (good faith) in the Croatian legal order can cause various legal consequences. From the aspect of consumer contracts, we find two institutes in which one of the prerequisites is a violation of this principle - unfair contract terms and unfair commercial practices. The paper explains these institutes and addresses the concept of good faith from the aspect of these institutes. Given that the regulation of these institutes in the Croatian legal order results from harmonization with the directives, the explanations first start from the regulations arising from these directives. This paper aims to explain the trader's legal position in consumer contracts in the event of an infringement that also constitutes a violation of the principles of conscientiousness and honesty. Legal consequences can be on the one hand private law sanctions, while on the other hand, they can be public law sanctions. The paper will explain what these sanctions are, what their purpose is, and how the court makes a decision on these sanctions and refers to their possible collision.*  
**Keywords:** *Unfair contract terms, Unfair commercial practice, legal remedies, private sanctions, misdemeanor, consumer contract*

### **1. INTRODUCTION**

The principle of conscientiousness and honesty (good faith) is one of the main principles in contract law. This principle imposes an expectation for contracting parties that each one of them will obey it in creating obligations and exercising the rights and obligations resulting from such obligations. Additional rules on contract law deal with the consequences in case one contracting party violates this principle. In general, traders, as professionals in consumer contracts, have many different obligations due to the rules aimed at protecting consumers besides acting in accordance with good faith. Among rules that protect consumers, two important instruments of protection are based on the principle of conscientiousness and honesty (good faith) – regulation of unfair contract terms and unfair commercial practices. In general, in Croatian private law, legal regulation of provisions of general conditions of the contract which are, among other prerequisites, contrary to the principle of conscientiousness and honesty (good faith) or unfair could be found in Article 296 of the Obligations Act (Official gazette, num. 35/2005, 41/2008, 125/2011, 78/2015, 29/2018, 126/2021, 114/2022, 156/2022, hereinafter: OA). When it comes to a consumer contract, regulation of unfair contract terms can be found in articles 53 – 59 of the Consumer Protection Act (Official Gazette, num. 19/2022, 59/2023, hereinafter: CPA). Legal provisions on unfair contract terms in consumer contracts were created in a process of implementation with three different directives: Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts (OJ L 95/29, hereinafter: Unfair Contract Terms Directive), Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council Text with EEA relevance (OJ L 304, article 32 amends Unfair Contract Terms Directive with article 8a) and Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019 amending

Council Directive 93/13/EEC and Directives 98/6/EC, 2005/29/EC and 2011/83/EU of the European Parliament and of the Council as regards the better enforcement and modernisation of Union consumer protection rules (OJ L 328, hereinafter: Directive (EU) 2019/2161; article 1 amends Unfair Contract Terms Directive with article 8b). Articles 32 – 42 of the CPA regulate unfair commercial practices and those rules are aligned with Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council (OJ L 149, hereinafter: Unfair Commercial Practices Directive). Regulation of unfair commercial practices is also recently amended through Directive (EU) 2019/2161 (article 3). Regulation of unfair contract terms and unfair commercial practices imposes certain obligations on traders. To ensure that traders comply with their obligations, the legal order establishes two different systems of sanctions for them – private remedies and public sanctions. The main purpose of this article is to explain how those two systems of sanctions function. Before that, the main characteristics of both institutes will be explained from the perspective of European and national law with emphasis on good faith as one of the prerequisites.

## **2. GENERAL CONSIDERATION ON THE LEGAL CONCEPT OF UNFAIR CONTRACT TERMS AND UNFAIR COMMERCIAL PRACTICES**

Consumers very often conclude contracts by accepting contractual provisions written in advance by traders. This means that traders can use their better negotiation position and impose those conditions that are more in their favor. So, the main purpose of the regulation of unfair contract terms is to control contractual provisions in one-sided standard contracts and to provide adequate legal sanctions if they create unfairness, or imbalance between contracting parties, or in any other way negatively affect consumers' economic interests. In general, it aims to create a balance between the legal position of traders and consumers having in mind their rights and obligations. The Unfair Contract Terms Directive which brings approximation of laws of Member states applies to a wide range of consumer contracts (sale of goods and services, consumer credit, timeshare, etc.). In that sense consumer is defined as “any natural person who is acting for purposes which are outside his trade, business or profession” (article 2 (b) Unfair Contract Terms Directive). The term trader is not explicitly used, but the term “seller or supplier” is defined “as any natural or legal person who is acting for purposes relating to his trade, business or profession, whether publicly owned or privately owned” (article 2 (c) Unfair Contract Terms Directive). The OA, which in Croatian private law applies to all contracts, regulates the consequences of terms and conditions if such terms are contrary to the principle of conscientiousness and honesty (good faith) and, as such, result in obvious inequality in the rights and obligations of the parties, to the detriment of the contracting party of the drafter, or jeopardize the achievement of the purpose of the contract, even if the general terms containing them are approved by the competent authority (see article 296). Article 53 paragraph 1 of the CPA which implements Article 3 paragraph 1 of the Unfair Contract Terms Directive regulates that “a contractual term which has not been individually negotiated shall be regarded as unfair if, contrary to the requirement of good faith, it causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer”. It is presumed that it has not been individually negotiated about contractual term if that term has been drafted in advance and the consumer has therefore not been able to influence the substance of the term, particularly in the context of a pre-formulated standard contract (article 53 paragraph 2 of the CPA). This presumption is the first step in the testing of unfairness of contractual terms (Mišćenić 2021). The second one is the determination of whether the term is opposite to the principle of conscientiousness and honesty (good faith).



Recital 16 of the preamble of the Unfair Contract Terms Directive emphasizes that it is expected from the trader to conduct in accordance with the principle of good faith. It explains very clearly that “the requirement of good faith may be satisfied by the seller or supplier where he deals fairly and equitably with the other party whose legitimate interests he has to take into account”. In Croatian private law, to determine this second prerequisite, general regulation of this principle arising from the OA should be the starting point. Art. 4 of the OA regulates that in “creating obligations and exercising the rights and obligations resulting from such obligations, parties shall act under good faith and fair dealing” (Baretić, 2013; Gorenc, et. al., 2014). One might say that during the assessment of fairness, the focus should be made on the negotiation phase while the trader should have taken into account the legitimate interests of consumers mostly in that phase. This is because national regulation of the principle of good faith should be interpreted according to the purposes of the Unfair Contract Terms Directive. Good faith in case of unfair contract terms should be also interpreted and applied following the relevant decisions of the European Court of Justice such as Pannon GSM (C-243/08), Aziz (C-415/11), RWE Vertrieb (C-92/11), etc. (Schulze, Zoll, 2016). This principle is the main criterion in the assessment of possible imbalance between contracting parties and fairness of the term in general and the court must take into account the legal position of the trader and the legal position of the consumer. In the case of Aziz EU court stated that “a significant imbalance should be considered to be unjustified in particular where the consumer’s rights and obligations are curtailed to such an extent that the party stipulating the contractual conditions could not assume, in accordance with the requirement of good faith, that the consumer would have agreed to such a provision in individual contract negotiations”. The third step in the assessment of the unfairness of the term is the imbalance in the parties' rights and obligations arising under the contract. The Annex of Unfair Contract Terms Directive contains an indicative and non-exhaustive list of the terms that may be regarded as unfair and they are transposed through article 54 of the CPA. Those contract terms will be unfair if all the steps of the unfairness test are met. Besides those three steps of the unfairness test the court can also consider other criteria (see: Article 7 of the Unfair Contract Terms Directive, article 55 paragraph 2 of the CPA). Consumers' choices before making a decision on the conclusion of the contract can be influenced by traders in various ways. Before entering into a contract, traders are obligated to provide consumers with pre-contractual information to ensure that they are well informed and can make reasonable decisions (Josipović, Kanceljak, 2022). Traders' practices, not only in the contractual phase but even after, can be unfair and put consumers' economic interests at risk. Because of that, the protection of consumers as a weaker party from unfair commercial practices is provided through transposed norms of the Unfair Commercial Practices Directive. In Croatian private law, unfair commercial practice is regulated in articles 32 – 42 of the CPA (see more on regulation: Mišćenić, Mamilović, 2019). One of the main goals of this regulation is to prohibit “unfair commercial practices which occur outside any contractual relationship between a trader and a consumer or following the conclusion of a contract and during its execution” (recital 13 of the Unfair Commercial Practices Directive). In that sense, a consumer is defined “as any natural person who is acting for purposes which are outside his trade, business, craft or profession” (Article 2 (a) of the Unfair Commercial Practices Directive) and a trader “as any natural or legal person who is acting for purposes relating to his trade, business, craft or profession and anyone acting in the name of or on behalf of a trader” (Article 2 (b) of the Unfair Commercial Practices Directive). When it comes to the scope of the directive, it applies to all consumer contracts, but its focus is on regulating business-to-consumer commercial practices (Wilhelmsson, 2006). For purposes of the Unfair Commercial Practices Directive such practices are defined as “any act, omission, course of conduct or representation, commercial communication including advertising and marketing, by a trader, directly connected with the promotion, sale or supply of a product to consumers (Article 2 (d)).

The Unfair Commercial Practices Directive prohibits three levels of traders' behavior, as explained by theoreticians (Micklitz, 2006; Busch, 2004). The first level of prohibited practices is regulated in Article 5 paragraph 2 of the Unfair Commercial Practices Directive (article 32 paragraph 2 of the CPA). It outlines the criteria for determining unfair and in consequence prohibited practices. Commercial practice is unfair if (1) it is contrary to the requirements of professional diligence and (2) it materially distorts or is likely to materially distort the economic behavior with regard to the product of the average consumer whom it reaches or to whom it is addressed or of the average member of the group when a commercial practice is directed to a particular group of consumers. The concept of fairness and good faith is understood through professional diligence. Article 2 (h) of the Unfair Commercial Practices Directive defines professional diligence as “the standard of special skill and care which a trader may reasonably be expected to exercise towards consumers, commensurate with honest market practice and/or the general principle of good faith in the trader's field of activity”. While deciding on the existence of unfairness, Croatian courts might start with the interpretation of article 10 paragraph 2 of the OA which regulates that “in performing obligations relating to their professional activities, parties shall act with increased care in accordance with professional rules and practice (to exercise the case of a good expert)” (Gorenc, *et. al.*, 2014). Having in mind a wide range of the contracts that come in the scope of the directive it is possible that this decision on unfairness will be based on specific rules created for certain traders. For example, the EU court in case Vanderborght (C-339/15) emphasized that Member States are allowed to regulate their own “deontological codes of conduct or other specific rules governing regulated professions in order to uphold high standards of integrity on the part of the professional” and such regulation is not in collision with Unfair Commercial Practices Directive. The second level of prohibited practices are misleading commercial practices as misleading actions and misleading omissions along with aggressive commercial practices (articles 6, 7, 8, and 9 of the Unfair Commercial Practices Directive; articles 35, 36, 38, 39 of the CPA). In those cases, it is not necessary to evaluate if the practice is unfair as it was explained for the application of Article 5 of the Unfair Commercial Practices Directive (see case CHS Tour Services, C-435/11). The third level consists of the practices which are in all circumstances considered unfair *per se* and they are regulated in Annex 1 of the Unfair Commercial Practices Directive (articles 37 and 40 of the CPA).

### **3. TRADERS' POSITION REGARDING CONSUMERS' LEGAL REMEDIES BASED ON PRIVATE LAW**

#### **3.1. Generally on remedies**

National rules on unfair contract terms and unfair commercial practices create specific obligations for traders and following that, specific subjective rights for consumers exist. Consumers have remedies granted by national law provisions if their rights are harmed. Mostly those norms were created in the process of transposition of the Unfair Contract Terms Directive and Unfair Commercial Practices Directive but also they have to be observed in relation to national general contract law and European Union legal sources. Charter of Fundamental Rights of the European Union (OJ C 326, hereinafter: Charter) in article 47 named “right to an effective remedy and to a fair trial” states that “everyone whose rights and freedoms guaranteed by the law of the Union are violated has the right to an effective remedy before a tribunal...”. This is also a reminder that not only material provisions are relevant but also procedural ones. So, this part of the article aims to explain consumer remedies and private enforcement in relation to the legal position of traders.

### 3.2. Unfair Contract Terms and Private Remedies

Directive on Unfair Contract Terms regulates the legal consequences of unfair contract terms. Article 6 paragraph 1 of Unfair Contract Terms regulates that "Member States shall lay down that unfair terms used in a contract concluded with a consumer by a seller or supplier shall, as provided for under their national law, not be binding on the consumer and that the contract shall continue to bind the parties upon those terms if it is capable of continuing in existence without the unfair terms". In addition, it is regulated that Member States should introduce "adequate and effective means to prevent the continued use of unfair terms in contracts concluded with consumers by sellers or suppliers". The Directive on Unfair Contract Terms does not specify legal consequences for cases when it is determined by the court decisions that provisions are not binding or even how individuals can protect their rights (Micklitz, 2010; Josipović, 2018). In that sense, national rules apply. EU court decisions interpreting the Directive on Unfair Contract Terms hold high importance due to their significance. For that purpose, the European Commission has issued "Guidance on the interpretation and application of Council Directive 93/13/EEC on unfair terms in consumer contracts" (hereinafter: Guidance). European Commission explains that the protection of consumers' rights before national courts must be provided according to principles of equivalence and effectiveness. It specifies that "equivalence means that the procedural rules for safeguarding rights deriving from EU law must not be less favorable than those applying to the protection of similar rights under domestic law or governing similar domestic actions" (Guidance based on cases Radlinger and Radlingerová, C-377/14, paragraph 48; Finanmadrid, C-49/14, paragraph 40; Sánchez Morcillo and Abril García, C-169/14, paragraph 31 and Nóra Baczó, C-567/13, paragraphs 42-47). Effectiveness, on the other hand, "implies that the national rules of procedure may not make it virtually or in practice impossible or excessively difficult for citizens, including consumers, to exercise rights under EU law" (Guidance based on cases Finanmadrid, C-49/14, paragraph 40; Sánchez Morcillo and Abril García, Case C-196/14, paragraph 31). Besides the abovementioned principles, the principle of *ex officio* control of unfair contract terms is established by court decisions implying that this kind of control is necessary in all stages of procedure (Guidance based on cases: Karel de Grote, C-147/16, paragraphs 24-37; Erika Jöros, C-397/11, paragraphs 30, 35, 36 and 38; Asbeek Brusse, Case C-488/11, paragraph 45; Asturcom Telecomunicaciones, Case C-40/08; Pohotovost', C-76/10; Finanmadrid, Case C-49/14). Article 59 of the CPA regulates that unfair contract terms are null but it doesn't necessarily mean that the whole contract is null, especially when the contract can provide legal effects without the null provision. Similar regulation on the nullity of the provision of the contract arises from Article 324 of the OA. CPA only regulates the nullity of the term as it is determined in the Directive on Unfair Contract Terms but it doesn't regulate legal consequences. In Croatian private law, nullity as an institute protects the public interest (Klarić, Vedriš, 2014). As a response to that, courts control the possible nullity of contractual terms and contracts in general *ex officio* (article 327 paragraph 1 of the OA), which complies with the principle of *ex officio* control set out by the EU court's interpretation. Of course, the unfairness of the term can be invoked by the consumer in an individual procedure according to the rules set out in the Civil Procedure Act (Official Gazette, num. 4/1977, 36/1977, 36/1980, 6/1980, 69/1982, 43/1982, 58/1984, 74/1987, 57/1989, 20/1990, 27/1990, 35/1991, Narodne novine br. 53/1991, 91/1992, 112/1999, 129/2000, 88/2001, 117/2003, 88/2005, 2/2007, 96/2008, 84/2008, 123/2008, 57/2011, 25/2013, 89/2014, 70/2019, 80/2022, 114/2022). Another way of protection is in the collective procedure regulated in the Act on representative actions for the protection of collective interests and consumer rights (Official Gazette, num. 59/23). In case of nullity, the court declares that the contract or the term is null and this declaration applies *ex tunc*.

In addition, the OA regulates the consequences of annulment of the contract (damages and restitution, article 323 of the OA) but this provision is only applicable when a whole contract is declared null. So, neither OA nor CPA regulates the consequences when only one term of the contract is null (partial nullity). This leads to the conclusion that even if the term is not binding to the contract parties, the contract itself is only if it is possible to remain in force without that specific unfair (and null) contract term. Restitution, as a consumer remedy, might be of importance not only when the court has declared the nullity of the whole contract but also in the case where an unfair provision is null and the consumer has overpaid a certain amount of money based on the null provision (see for example case *LH v Profi Credit Slovakia*, C-485/19, p.58). Consumers' claims in such cases would be based on unjust enrichment (article 1111 of the OA). Traders, on the other hand, could invoke the question of the statute of limitation. Although in Croatian private law, the claim to determine the nullity of the contract is not time-limited, restitution is bound to the timeframe of five years (Klarić, Vedriš 2014). Supreme Court of the Republic of Croatia has published several legal opinions concerning the unfair contract terms. One of them was expressed on January 31, 2022. It stated that "limitation period in the case of a restitution request according to which the contracting parties are obliged to return to each other everything they received on the basis of a null contract, i.e. in the case of a request from Article 323, paragraph 1 of the OA as a consequence of determining the nullity of the contract, begins to run from the date of finality of the court decision which determined or otherwise established the nullity of the contract". Although this is expressed having in mind the nullity of the whole contract the same consequences should apply for the partial nullity. Another obligation for the trader is to pay the interest on the amount he has received from the consumer (article 1115 of the OA). Depending on the good faith of the trader, the interest rate is calculated differently. If the trader accepted the money in good faith, he is obliged to pay interest calculated from the day of the consumer's claim (request for annulment), otherwise from the day he received the money. In general, the trader was not in good faith if he knew or could have known, using the attention of an averagely observant person, that he had unjustly enriched himself (Gorenc *et. al.*, 2014). Having in mind that we are dealing with consumer contract and that the trader is a "stronger" party, with much more knowledge and a person who should perform with professional attention and the fact that the nullity exists because of the unfairness it can be concluded that the trader did not perform according to the good faith. The interest should be calculated from the day the trader has received the money. One of the questions that were discussed was the question whether the court could modify the contract. EU court has in the case *Banco Primus* (C-421/14, p. 71) stated that "national courts are merely required to exclude the application of an unfair contractual term in order that it may not produce binding effects with regard to the consumer, without being empowered to revise the content of that term." The problem could be that the contract cannot remain in force because of the nullity of the term. In that case, there are two different possibilities. One of them is the determination of the court that the whole contract is null and the consumer will have the right to damages and restitution (article 323 of the OA). The other is that the court, after an assessment of the case replaces unfair contract terms with supplementary rules of national law. This solution can be taken as quite problematic and the recent EU court practice is not keen on this solution. For example, in the case *Dziubak*, C-260/18 the "court made it clear that the national court may not replace the unfair term with obligations arising from open standards such as reasonableness and fairness or good faith either" (Loos, 2022). Such filling gaps in order to avoid the nullity of the contract and preserve its continuity can be taken as an exception to the main rule that the court is not allowed to revise the unfair and null term. On the other hand, possible revision of the contract can result from additional stipulations between the trader or consumer without the inclusion of the court. It is questionable if such a change of the contract can be considered a renewal or novation of the contract.

Novation occurs if the parties agree to replace the existing obligation with a new one and if the new obligation has a different principal performance or a different legal basis (article 145 of the OA). This might be of importance while Article 148 paragraph 1 of the OA regulates that the novation shall have no effect if the previous obligation was null. Following the previous conclusion, in case of unfair contract terms, the contract is only partially null and the idea is that the contract provides legal effect, so it can be said that renewal of the contract will be valid although one term is null because of the unfairness. From the trader's point of view, if the consumer claims damages in any of these previously explained cases, he could claim that one of the prerequisites for liability for damages (Klarić, Vedriš, 2014). Since the base for his liability is the existence of the unfair term and if the unfairness test takes place before the court, the trader can elaborate on the fairness of the term. In that sense, he is in a worse position than the claimant (consumer) while the trader is bearing the burden of proof (see Article 3 paragraph 2 of the Unfair Contract Term Directive, article 53 paragraph 4 of the CPA). The trader can only argue that a particular contractual provision in a pre-formulated standard contract was individually negotiated and he is obliged to prove it.

### **3.3. Unfair Commercial Practices and Private Remedies**

Directive on Unfair Commercial Practices only mentions that “persons or organizations regarded under national law as having a legitimate interest in the matter must have legal remedies” (recital 21 of the preamble, article 11; Poelzig, 2014). It is not explicitly regulated what kind of private remedies consumers have. The recent changes made through Directive (EU) 2019/2161 have a much broader and more specific regulation of remedies (Alexander, 2023). Article 3 paragraph 5 of Directive (EU) 2019/2161 amends the Directive on Unfair Commercial Practices by inserting a new article 11a that regulates redress. It regulates that the consumer “shall have access to proportionate and effective remedies, including compensation for damage suffered by the consumer and, where relevant, a price reduction or the termination of the contract”. In the process of the transposition, Member States had the opportunity to “determine the conditions for the application and effects of those remedies”. This means that Member States had a certain flexibility in regulating consumers' remedies. Croatian legislator decided to regulate only what was thought to be necessary to implement Directive (EU) 2019/2161. Article 41 of the CPA regulates that consumers have a right to compensation for damages and other rights regulated by general contract law rules. It is questionable what is meant under “other rights regulated by general contract law rules”. By interpreting the Directive (EU) 2019/2161 one of the legal remedies can be price reduction or termination of the contract. According to Croatian general contract law price reduction usually exists as a remedy in cases when a lack of conformity exists or even in cases of destruction of the thing that is the object of the contract, so it is not very likely that consumers will have an adequate legal base for a price reduction in case of unfair commercial practice. Croatian general contract law differentiates several reasons for termination of the contract (for example see articles 360 – 374 of the OA). None of them is based on any kind of unfair practices imposed by traders or exists as a violation of the principle of good faith. Regulation of the termination of the contract is a compromise arising from the fact that this directive should be transposed to different Member States and unfair commercial practice may lead to the nullity of the contract and then consequently to the termination of the contract (see: Guidance on the interpretation and application of Directive 2005/29/EC of the European Parliament and of the Council concerning unfair business-to-consumer commercial practices in the internal market). In Croatian private law, as was explained earlier, only the rights to compensation (damages) and restitution are legal consequences of the nullity. On the other hand, consumers would have two options. Firstly, they might claim compensation for damages based on article 41 of the CPA.

Although the contract has been concluded, in this case, the usual breach of the contract like non-performance, defective performance or late payment, doesn't exist. The main problem in the relationship between the trader and consumer is the fact that the trader's behavior was against good faith in the phase of negotiations. This leads to the conclusion that the legal base for trader liability is the rule on pre-contractual liability (see Article 251 paragraph 2 of the OA, Gorenc, *et. al.*, 2014). In the claim, the consumer will have to elaborate on the trader's practices toward them in the negotiation phase by arguing that it was unfair and that he probably would not even conclude the contract he concluded. They will not be obliged to prove that the practices were unfair. According to article 42 of the CPA, the burden of proof regarding the accuracy of factual claims related to business practices is on the trader. Article 12 of the Directive on Unfair Commercial Practices regulates that court can „require the trader to furnish evidence as to the accuracy of factual claims in relation to a commercial practice if, taking into account the legitimate interest of the trader and any other party to the proceedings, such a requirement appears appropriate on the basis of the circumstances of the particular case“. This can be explained in a way that, although Member States have a certain freedom in transposition of solution of the burden of presenting evidence, it can be regulated in national law that only when the court finds adequate, they might require traders to provide evidence (Collins, 2005). In addition, Article 12 of the Directive on Unfair Commercial Practices regulates that the courts should „consider factual claims as inaccurate if the evidence demanded from the trader is not furnished or is deemed insufficient by the court or administrative authority“. CPA explicitly puts the burden of proof on the trader which positively reflects the consumer's position. When consumers claim damages, it will be easier for them since they will have to elaborate on the causal link between the unfair commercial practice that led to the conclusion of the contract and the damages. The other possible remedy for consumers is annulment of the contracts. Misleading practices are usually based on providing incorrect information in negotiations or simply withholding information. Under general rules of contract law the reason for annulment in this case could be fraud (Patti, 2016). Article 284 paragraph 1 of the OA regulates that if one party causes a mistake or intentionally leaves in mistake the other contractual party to induce it to conclude a contract, the other party may require the annulment of the contract also in cases where the mistake was not fundamental. In addition, if a party concluded a contract as a result of fraud, it is entitled to demand compensation for the damage suffered (article 284 paragraph 2 of the OA, Klarić, Vedriš, 2014). The consumer will have to prove that the mistake led to the conclusion of the contract, so again the base would be an unfair practice that has caused the mistake and consequently made the consumer conclude the contract. Consequences of annulment are a liability for damages and the right to restitution (Cafaggi, Iamicelli, 2017). Consumer remedies will have to be achieved in accordance with the principle of effectiveness. In case of damages, article 1090 of the OA on full compensation should be applied. If the remedies are based on the restitution, rules on the extent of recourse in unjust enrichment apply (article 1115 of the OA) and the trader should pay back the sum of money from the day of submission while he must be interpreted as a person who did not behave in accordance with good faith.

#### **4. PUBLIC SANCTION FOR TRADERS IN CASE OF UNFAIR CONTRACT TERMS AND UNFAIR COMMERCIAL PRACTICES**

European legislator did not interfere much in the regulation of sanctions concerning unfair contract terms and unfair commercial practices. Member States were free to determine sanctions and enforcement in general. Such an approach led to differences between regulations in Member States. The preamble of Directive (EU) 2019/2161 in Recital 5 explains that “not all Member States ensure that effective, proportionate and dissuasive fines can be imposed on traders”.

It has to be mentioned that a special regulation that applies only to intra-Union infringements, widespread infringements, and widespread infringements with a Union dimension is Regulation (EU) 2017/2394 of the European Parliament and of the Council of 12 December 2017 on cooperation between national authorities responsible for the enforcement of consumer protection laws and repealing Regulation (EC) No 2006/2004 (OJ L 345) (hereinafter: Regulation (EU) 2017/2394 ). The focus of this part of the article will be on Directive (EU) 2019/2161 concerning amendments to the Directive on Unfair Contract Terms and the Directive on Unfair Commercial Practices (Article 1 and Article 3). Novelties introduced in Directive (EU) 2019/2161 do not affect procedural rules of national procedures or competent administrative bodies. The main idea of the regulation is that the competent court or administrative body imposes penalties against traders in accordance with non-exhaustive and indicative criteria set out in Directive (EU) 2019/2161. There are 6 different criteria: (1) the nature, gravity, scale and duration of the infringement; (2) any action taken by the seller or supplier to mitigate or remedy the damage suffered by consumers; (3) any previous infringements by the seller or supplier; (4) the financial benefits gained or losses avoided by the seller or supplier due to the infringement, if the relevant data are available; (5) penalties imposed on the seller or supplier for the same infringement in other Member States in cross-border cases where information about such penalties is available through the mechanism established by Regulation (EU) 2017/2394 of the European Parliament and of the Council; (6) any other aggravating or mitigating factors applicable to the circumstances of the case. In case of penalties according to Regulation (EU) 2017/2394 additional criteria have been given to determine the maximum amount of fines (see new 8b, paragraphs 4 and 5 of Unfair Contract Terms Directive and new article 13 paragraphs 3 and 4 Directive on Unfair Commercial Practices; Duivenvoorde, 2019). When it comes to the regulation of sanctions and public enforcement in Croatian law, two things have to be divided. Firstly, the legal nature of sanctions and their purpose, and secondly procedural norms and competent bodies. In general, the violation of provisions of the CPA, including traders' obligations, is sanctioned through misdemeanors and administrative measures. It is regulated that trades will have to pay fines which the court (or other competent body) can determine in a minimum value of 10.000,00 (cca. 1.333,33 Euros) Croatian kunas and a maximum value of 200.000,00 Croatian kunas (cca. 26.666.66 Euros) (article 149 paragraph 1 of the CPA). The purpose of those misdemeanors is based on the purpose of the act itself established in Article 1 of the CPA. From the aspect of sanctions of importance is the protection of economic interests of consumers but also their right to live, health and property, and legal protection of consumers rights in general. The most important purpose of protection in case of unfair contract terms and unfair commercial practices is consumers' economic interests (Gomez, 2006). On the EU level, it is emphasized, that sanctions must be, as previously explained, effective, proportionate, and dissuasive (Pavillon, 2018). Croatian legislator believes that misdemeanors as sanctions meet those conditions. After the implementation of Directive (EU) 2019/2161 fines are even higher and the proposal for a new CPA explains that fines in the previous legislation were not dissuasive enough (see: <https://esavjetovanja.gov.hr/ECon/MainScreen?entityId=16882>). According to the CPA, if a trader uses unfair contract terms in a consumer contract and a final court decision confirms it, the trader is liable for a misdemeanor (Article 149, paragraph 1, p. 58). In addition, if the trader uses unfair commercial practice he is liable for a misdemeanor according to Article 149 paragraph 1, p. 49. Misdemeanors that harm collective interests and consumer rights are a specific category of sanctions and are also applicable to unfair commercial practices and unfair contract terms. For such cases, the CPA regulates even higher fines (for example they can be between 1.000.000,00 and 15.000.000,00 Croatian kunas). For both categories of misdemeanors, CPA regulates the minimum and the maximum amount of money that can be imposed as a fine.

The competent body will decide on a specific amount having in mind the rule on the choice of type and the measure of punishment provided in Article 153 of the CPA. This article implements criteria set out in Directive (EU) 2019/2161 for imposing fines against traders. The inspection supervision over the trader's compliance with the CPA is carried out by market inspectors of the State Inspectorate in accordance with the law regulating the duties and powers of market inspectors. Besides the State Inspectorate, other competent bodies are in charge of inspection (for example, the Croatian National Bank or Croatian Financial Services Supervisory Agency, Croatian Regulatory Authority for Network Industries; Baretić, Petrović, 2018). In case of unfair commercial practice, the competent inspector (or other competent body) shall, by decision, prohibit the trader from engaging in business practices that are considered unfair (Article 147 paragraph 2 of the CPA). Such prohibition is a special administrative measure and the trader can regarding administrative measures initiate administrative procedures before Administrative courts. In such a situation Administrative Case Litigation Act (Official Gazette, num. 20/2010, 143/2012, 152/2014, 94/2016, 29/2017, 110/2021) applies. On the other hand, concerning misdemeanors, the competent inspector is obliged to, without delay, and no later than 15 days from the completion of the inspection, submit a proposal for the initiation of misdemeanor proceedings or issue a misdemeanor order. A proposal for the initiation of misdemeanor proceedings is a starting point for a proceeding before misdemeanor courts that proceed according to the Misdemeanour Act (Official Gazette, num. 107/2007, 39/2013, 157/2013, 110/2015, 70/2017, 118/2018, 114/2022, hereinafter: MA). After issuing a misdemeanor order, traders are obliged to pay fines but they can appeal to a higher authority. Besides misdemeanors, criminal offenses must be taken into account. As explained before, the use of unfair commercial practices can be interpreted as fraud. The Criminal Code (Official Gazette, num. 125/2011, 144/2012, 56/2015, 61/2015, 101/2017, 118/2018, 126/2019, 84/2021, 114/2022, 114/2023) regulates fraud as a criminal offense. According to Article 236 of the CC "anyone, with the intention of obtaining unlawful property gain for themselves or another, who misleads someone by false representation or concealment of facts, or keeps them in error, thereby inducing them to do or not do something to the detriment of their or others' property, shall be punished by imprisonment for a term of six months to five years". If, through the criminal act previously described, a substantial property gain is obtained or significant damage is caused, the offender shall be punished by imprisonment for a term of one to eight years. On the other hand, if a minor property gain is obtained, and the perpetrator pursues such gain, they shall be punished by imprisonment for up to one year. This also means that for the same use of the unfair commercial practice, in theory, the trader can be liable both for a criminal offense and for a misdemeanor but also against him can be imposed administrative measures. This could be a violation of the principle of *ne bis in idem*. Even the Directive (EU) 2019/2161 (point 8 of the preamble) mentioned that Member States should take into account this principle. Article 50 of the Charter named "Right not to be tried or punished twice in criminal proceedings for the same criminal offense" regulates that "no one shall be liable to be tried or punished again in criminal proceedings for an offense for which he or she has already been finally acquitted or convicted within the Union in accordance with the law". Regarding article 50 of the Charter, the court of the EU explains in judgment in case C-27/22, Volkswagen Group Italia and Volkswagen Aktiengesellschaft that "an administrative fine provided for under national legislation, which is imposed on a company by the competent national consumer protection authority for unfair commercial practices, although classified as an administrative penalty under national legislation, constitutes a criminal penalty, for the purposes of that provision, where it has a punitive purpose and has a high degree of severity". This can be taken as a basis for an argument that for the same behavior, the trader cannot be liable both for misdemeanors and criminal offenses while misdemeanors also have the same purpose and high degree of severity (Josipović, Novak Hrgović, 2016).



It is questionable if administrative measures collide with misdemeanors since both can be imposed in case of unfair commercial practice. Traders could also in such cases argue that the purpose of sanctioning is adequate only by using administrative measures and the court will finally in each case decide whether the use of both sanctions violates the principle of *ne bis in idem*. Croatian misdemeanor courts, especially opinions of the High misdemeanor court have already explained that sanctioning through administrative measures and a misdemeanor for the same trader's behavior represents a violation of the *ne bis in idem* (see: Bonačić, Tomašić, 2017).

## 5. CONCLUSION

Although legal regulation of unfair contract terms and unfair commercial practices is based on the violation of the principle of conscientiousness and honesty (good faith), this principle will not be interpreted in the same way. In other words, a different set of criteria will be used by the court in the process of assessment of unfairness. Regarding unfair contract terms, the focus of interpretation will be the existence of a significant imbalance in the parties' rights and obligations which results from the unfair contract term. Interpretation of good faith in unfair commercial practices deals with traders' behavior in the pre-contractual phase and the violation exists if such behavior is contrary to the requirements of professional diligence. In both cases, the consumer would not even conclude the contract if the trader obeyed the principle of good faith because his legal position under the contract was against the consumer's economic interests and in favor of the trader. When it comes to private enforcement in case of unfair contract terms the main idea is that the contract remains without the unfair term. If the contract cannot remain it will be declared null and a consumer will have a right to damages and restitution. Those remedies will be achieved through general contract law norms arising from the OA because the CPA doesn't explicitly regulate consumers' remedies. If a consumer made a payment in relation to the unfair contract term, nullity of the term can lead to the right of restitution based on unjust enrichment. The court can change the unfair norm by creating a new one only in exceptional situations but contracting parties are allowed through an annex of the contract to replace a norm which might even lead to a novation of the contract. Regarding unfair commercial practices, CPA (article 41) explicitly regulates consumers' right to damages. Traders' liability is based on rules regulating pre-contractual liability for damages. Also, the trader will be liable both for damages and restitution if consumers prove that the contract was concluded because of the error or mistake and the contract is annulled because of the fraud. Two important things have been noticed regarding traders' legal position in proceedings against them concerning unfair contract terms and unfair commercial practices. The first one deals with the burden of proof and the trader will have to bear such a burden while the consumer is a weaker party and it is believed that the trader as a professional can more easily present possible means of evidence. The second one concerns the effectiveness of remedies. So, in case of damages, the consumer will be entitled to full compensation and in case of restitution the trader, since he did not behave in good faith, will be obliged to pay back not only the money he received but also the interest rate since the day of the payment (article 1115 of the OA). The legal base for public sanctions for traders concerning unfair contract terms and unfair commercial practices is the CPA. State inspectors and other competent bodies may impose fines on traders if they determine that traders' behavior is a misdemeanor. Also, administrative measures can be imposed if it is determined that the trader used unfair commercial practices. Another sanction exists for traders in case of unfair commercial practices – a criminal one. If the trader's behavior can be interpreted as fraud, under CC, this might even lead to imprisonment. This also means that there are three different public sanctions against traders in case of unfair commercial practice – misdemeanors, administrative measures, and criminal offenses.

Since different bodies are competent for each sanction, this might lead to the violation of the principle of *ne bis in idem*. If one sanction imposed against the trader in a specific case is effective, proportionate, and dissuasive, there would not be a need for another sanction that has the same purpose. When it comes to the collision of private and public sanctions the same conclusion is not applicable. Private enforcement has a different purpose and through private remedies, only those consumers can be protected who initiated the proceeding against traders. On the other hand, public sanctions protect the public interest in general and the economic interest of those consumers who haven't yet concluded the contract.

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## DEVELOPMENT PROSPECTS FOR HOLIDAY RENTAL SERVICES: THE ROLE OF ENTREPRENEURIAL CHARACTERISTICS

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### **ABSTRACT**

*Holiday rentals are one of the fastest growing segments in the provision of catering services, which is why the appearance of each new property in the destination intensifies the competition for their business. On the demand side, the need for an increased level of quality in all aspects of the services offered is observed, which brings with it the problem of maintaining competitiveness. The aim of the study is to investigate the entrepreneurial characteristics of accommodation providers i.e. renters and business performance of the holiday rentals, as well as the degree of cooperation between renters and tourism board. The study was conducted in the Primorsko - goranska County, which is one of the most successful tourist regions in the Republic of Croatia. The results of the study are a contribution to the research of small family business, especially in the context of providing accommodation services in holiday rentals and also serve as a guide for practitioners in the design of this type of accommodation services*

**Keywords:** *holiday rentals, family business, entrepreneurial characteristics, collaboration, business performance*

### **1. INTRODUCTION**

Holiday rentals are an increasingly popular type of accommodation and plays a significant role in the tourism industry. As it creates new jobs and increases revenue, raises the value of property in tourist destinations and increases the level and volume of local business, it is particularly important for the local economy. As far as the objectives of this segment of entrepreneurial activity are concerned, successful business performance and maintaining competitiveness are the main goals. The starting point for the elaboration of the topic is shown by the fact that this form of entrepreneurship is an increasingly common form of self-employment, the choice of a certain lifestyle (Kulshreshtha & Kulshreshtha, 2019), but also the main source of income for a large number of families, especially in touristically developed areas. Considering the increasing demand for high quality catering services, which usually have a higher price, the need to improve entrepreneurial concepts and apply them in business is observed. Consequently, the research part of the study is based on the testing of two hypotheses that aim to investigate the relationship between the concept of accommodation competitiveness, entrepreneurial characteristics, the design of the holiday rentals' offer and business performance. The aim of the study is to investigate whether there is a statistically significant correlation between the entrepreneurial characteristics of renters and the way in which they design an offer in this type of accommodation, as well as the correlation between the entrepreneurial characteristics of renters and the intensity of cooperation with a tourist board as an umbrella institution that influences the operation of holiday rentals at various levels (especially at local and regional level). The contribution of the study can be seen on a scientific level as a contribution to the literature dealing with the problem of family entrepreneurship in the specific context of the hospitality industry and as a starting point for future research. In practical terms, the results obtained from the research may be useful for holiday rental service providers as an indicator of the importance of continuous development of entrepreneurial characteristics as a prerequisite for increasing competitiveness, business success and cooperation with destination management.

## 2. LITERATURE REVIEW

Holiday rentals are a type of accommodation that is characterised by several important features: tourists pay for accommodation and stay in the private homes of their hosts (Gu & Wong, 2006), the guest directly or indirectly (through intermediaries) uses and pays for accommodation in the homes of their owners and to some extent shares space with the host. Holiday rentals include the full range of different types of accommodation, including rural households, family accommodation, small hotels and lodging establishments offering breakfast services in addition to accommodation (Lynch, 2005). The definition of this type of accommodation and the regulation of the conditions under which they operate in the Republic of Croatia is determined by the Rulebook on the classification and categorization of facilities that provide services in holiday rentals and include: rooms, apartments, studio apartments, holiday homes, camps and camp sites (NN, 09/2016). The importance of these types of accommodation in the context of tourism is evidenced by the fact that half of all overnight stays in the Republic of Croatia are realised in holiday rentals (DZS, 2023). Although the perception of renters as entrepreneurs seems to be questioned because they provide accommodation services in their household (family household), which is a secondary activity (Cerović et al., 2009), it is undeniable that they invest capital to build and equip facilities, take the risk of returning the invested capital and present their product on the market (Cerović et al., 2014), which makes them a part of the entrepreneurial system that creates, improves and sustains its business. There are two elements in the provision of accommodation: the material basis and the services, which is why renters are faced with an ambivalent quality problem (Vitkienė, 2004 in Jasinskis et al., 2016): Technical quality (appearance and quality of furniture, equipment and decoration of the facility) and functional quality, which implies the quality of service i.e. relationship with the host(renter). Technical quality in the provision of accommodation services in holiday rentals is what the guest receive during their stay, i.e. the accommodation, and represents the "outer layer" of quality (Kinderis, 2011 in Jasinskis et al., 2016). As holiday rentals are a form of micro-entrepreneurship, it is important to consider the knowledge of the renters as one of the most important factors for the business success. Knowledge is the result of intelligence (learning ability) and conditions (learning opportunities) and consists of conceptual and practical knowledge (Winterton et al., 2006), whereby Collin (1997) distinguishes know-how (knowledge and experience) and know-that (theoretical knowledge). In the modern economy, a company's competitiveness is based on its ability to develop and implement knowledge-based resources, especially in an entrepreneurial environment characterised by globalisation processes, competition and technological change. Knowledge represents the source of entrepreneurship (Gartner & Carter 2003), serves as a resource for entrepreneurial organisations investing in research and development, for their formal partners and other emerging organisations, and expands a range of opportunities for participation in entrepreneurial activities (Companys & McMullen, 2007). As a result, small entrepreneurs are increasingly turning to "intangible" sources, of which intellectual capital is an important prerequisite for business success, the basis for future competitiveness (Rodriguez Perez & Ordóñez de Pablos, 2003) and the most important innovation resource in the process of value creation, which has an impact on increasing profits (Sanchez-Gutierrez et al., 2016). A competitive advantage is therefore increasingly based on the concept of know-how and this is precisely what characterises market leaders. Family entrepreneurs have a broad bundle of resources and skills, known as the family stick, which results from the interaction between business and the family. The most important sources of capital in the family community can be identified as human capital (knowledge, skills and abilities of individuals); social capital (relationships between families on the one hand and stakeholders such as suppliers and customers on the other); and the structure of management and costs (the involvement of the family/managers in the business) (Sirmon & Hitt, 2003).

Human resources can be seen as a stock of knowledge, information and production and innovation skills (Becker, 1962 in Harris et al., 2012), suggesting that higher levels of knowledge lead to greater efficiency or better personnel and higher levels of human capital predict more successful business and better performance (Sikora et al., 2016). Mitchelmore and Rowley (2010) state in their research that the level of entrepreneurial skills determines the success and growth of the business and that the contribution of the business owner is not exclusively reflected in the capital invested but also in his managerial and technical skills and how educational and functional heterogeneity affects skill heterogeneity innovation by increasing cognitive resources (Chen & Chang 2013) and consequently the success of the business. Business performance can be measured in different ways through economic, technical, legal and other indicators (Vujević & Balen, 2006). When considering how companies evaluate their performance, it can be difficult to evaluate it using only words because it is often not clear, but relying only on numbers may not give the full picture either of how well the evaluation system is working (Napatsaporn, 2023). In the holiday rental sector, the business performance can therefore be measured using financial indicators (revenue, increased prices, investments, etc.), tourism indicators (number of overnight stays) and other technical-functional or organisational indicators (accommodation facilities, organisation of the business, etc.). Business performance is directly related to the activity of entrepreneurial networks (Abou-Moghli & Al Mualala, 2012) and can be considered as the correspondence between the objectives set and the results achieved (Yang, 2012). Due to the rapidly changing business environment, service providers must constantly look for new ways to increase their profits and improve business performance by responding to their customers' needs as quickly as possible, as this is critical to realising their business goals and gaining a competitive advantage (Shan et al., 2016). From the above, it can be concluded that the realisation of business objectives in the provision of holiday rental services depends on the ability to adapt to changing market conditions, or the degree of entrepreneurial characteristics of renters. Taking the above points into account, the following hypotheses were set:

- H1: The level of entrepreneurial characteristics of renters is significantly and positively related to the the designing accommodation offer in holiday rentals
- H2: The level of entrepreneurial characteristics of renters is significantly and positively related to the intensity of cooperation with the tourist board

### 3. METHODOLOGY

The empirical part of the paper is based on a study carried out using a structured questionnaire and examines the attitudes of accommodation providers in holiday rentals in the Primorsko-goranska county. The statements are divided into four themes, i.e. they form four concepts as follows: The first concept of "entrepreneurial characteristics" is analysed based on the entrepreneurial knowledge, skills and competencies of the respondents and contains ten statements taken from Getz and Petersen (2005) and adapted to the respondents. The second concept refers to the "the accommodation offer design" to explore the method of designing the accommodation offer from the service provider's perspective. It contains eleven statements based on several relevant sources consulted, be it practitioners, academic communities or literature. The third concept relates to measuring the "intensity of cooperation with the tourist board" for which a separate concept was created. The concept contains thirteen statements graded from 1 to 5, where: 1 - no co-operation, and 5 - excellent co-operation. The fourth concept of "business performance" comprises eight statements and was derived from earlier research by Chen, Tsou and Ya-Hui Huang (2009). The concepts: entrepreneurial characteristics, accommodation offer design, and business performance are defined by statements where respondents expressed the degree of agreement in a range of five levels, from 1 - I completely disagree to 5 - I completely agree.

#### 4. RESULTS

The sample consists of 192 renters in the area of, regardless of whether the aforementioned activity is carried out as a natural or legal person, provided that they have a licence to provide accommodation services in one or more types of holiday rentals (room, apartment, studio apartment, holiday home, camp and campsite). According to data from the Kvarner Tourist Board, Primorje - Gorski kotar Conuty consists of eight sub-regions (Kvarner Tourist Board 2023), according to which the respondents are distributed as follows: The largest share comes from the island of Krk (38.9%), followed by the Crikvenica-Vinodol Riviera (18.4%) and the Opatija Riviera (11.1%) and the island of Rab (10%). Respondents from the islands of Cres and Losinj took part with a share of 5.8 %, Gorski Kotar with 7.9 %, while the fewest respondents came from Rijeka and the Rijeka area (2.1 %). Looking at the genders in the sample, women predominate (63.7 %) and the educational structure is mainly made up of high school graduates (54.7 %), followed by those with a higher education (20 %) and a university education (17.4 %). The average age is 54 years. The respondents have been renting for an average of 19 years and have an average occupancy rate of 74 days. For most respondents (85.8 %), renting is an additional source of income, while for the rest are the main source of income.

Correlation analysis is used to test the main hypotheses. A descriptive analysis of the observed variables was carried out with the aim of determining the basic assumptions for carrying out the correlation analysis. The descriptive analysis is given as follows.

Entrepreneurial characteristics	Mean	Standard deviation	Asymmetry coefficient
I am determined and persistent to take on new challenges and tasks	4,06	,846	-,704
Taking care of the guests and the accommodation itself is always my top priority, regardless of the time of day or personal commitments	4,35	,833	-1,505
I organize the accommodation offer for my guests alone or with the help of my family	4,22	,911	-1,133
I would like to pass on my experience to the next generations of my family	4,49	3,887	12,408
I am prepared to take the initiative and take responsibility for setting up new businesses	4,01	1,044	-1,008
I continuously monitor market trends, the needs and wishes of my guests and organise my offer accordingly	4,05	,936	-,928
For new ventures, it is necessary to take risks, even if the outcome is uncertain	4,05	,974	-1,008
When designing my accommodation offer, I used original ideas that were not always understandable to everyone	3,44	1,071	-,487
From the very beginning of my accommodation business until today, I have adapted my offer to the changes in my environment	3,96	1,033	-,818
The goal when dealing with accommodation services is always a better result than the previous year (higher price or better occupancy)	4,38	,911	-1,717

*Table 1: Descriptive analysis for entrepreneurial characteristics  
(Source: Author's research)*

It is visible from the table 1 that the renters rated the management standards of their accommodation with high marks, ranging from 3.44 to 4.49. Respondents most agree that they would like to pass on their experience to future generations in their family, while the lowest rated variable is: "When creating my accommodation offer, I used original ideas that were not



always understandable." Very high average ratings are scored by following trends in the market, taking risks and achieving a better result than the previous year, and it is concluded that they agree with all statements except the above (lowest rated), which they do not even agree with. The standard deviation is less than 1 for 6 claims, which shows a slight deviation from the mathematical environment. At the same time, the asymmetry coefficient is between -1 and 1 for 4 claims, and in these cases the data is symmetrically distributed. Table 2 describes the concept of accommodation offer design.

Accommodation offer design	Mean	Standard deviation	Asymmetry coefficient
I introduce guests with basic local and traditional customs (culture, gastronomy, religious customs, etc.)	3,99	1,000	-,952
The accommodation objects with external and internal features must be adapted to the climate in which they are located	4,24	,905	-1,234
The renter is obliged to secure peace and privacy to the guest (not to enter the guests, silence after 10pm, etc.)	4,62	,677	-1,842
The renter is obliged to secure peace and privacy to the guest (not to enter the guests, silence after 10pm, etc.)	3,35	1,287	-,402
I look out for guests of important things (birthdays, understanding for guests with children, special needs, pets ...)	4,08	1,010	-1,043
My guests get a higher quality for the same money than in other facilities (hotels, pensions, camps, etc.)	4,04	,866	-,527
We disposal of waste by modern standards (garbage separation, recycling ...)	4,17	1,148	-1,320
Quality accommodation facilities are attracted to guests of greater purchasing power	4,43	,805	-1,295
National and Family Culture of Renters Attracting or Rejects certain groups of guests	3,65	1,171	-,719
I provide my guests with security and atmosphere of home (as if they were at home)	4,52	,695	-1,602
Investment in quality justifies a higher price of overnight stays	4,46	,794	-1,479

*Table 2: Descriptive analysis for accommodation offer design  
(Source: Author's research)*

The results presented in the table 2 above show high average scores, ranging from 3.35 to 4.62. Renters therefore fully agree that is obliged to provide the guest with peace and privacy . On the other hand, they neither agree nor disagree with the assertion that the guest is allowed to participate in the landlord's daily chores (watering and digging in the garden, animal care, olive harvesting, etc.). The standard deviation is less than 1 for 6 statements, which indicates a small deviation of the data from the average, and for the remaining statements the standard deviation is greater than 1. The values of the asymmetry coefficient are between -1 and 1 for 4 statements, and in these cases it is a symmetrically distributed data distribution. The intensity of cooperation with tourist board concept is shown in the table 3.

The intensity of cooperation with tourist board	Mean	Standard deviation	Asymmetry coefficient
Valorisation and management of cultural, historical and natural resources	3,17	1,114	-,176
Valorisation and management of municipal services	3,21	1,101	-,295
Improvement of the accommodation, catering and commercial infrastructure	3,12	1,137	-,175
Improvement of the transport infrastructure	3,13	1,112	-,193
Creation and realisation of entertainment and sports content and events	3,25	1,180	-,297
Creation and realisation of cultural and artistic content and events	3,41	1,186	-,464
Informing guests about a destination before and during their stay	3,55	1,153	-,599
Promoting a positive attitude towards tourism and tourists	3,69	1,218	,640
Environmental protection and control of noise, traffic jams, etc.	3,21	1,189	-,271
Safety of tourists (police, health care, fire brigade, mountain rescue services)	3,67	1,079	-,583
Prevailing cultural barriers and protection of the culture and customs of the local population	3,34	1,133	-,396
Involvement of guests in the activities of the local population (olive and grape harvest, fishing, etc.)	2,76	1,307	,142
Activities related to the promotion of the destination	3,31	1,178	-,221

*Table 3: Descriptive analysis for cooperation intensity from renters' perspective  
(Source: Author's research)*

The intensity of cooperation with the tourist office presented in table 3 was rated with average values of 2.76 to 3.69, which indicates moderate to very good cooperation between renters and tourist offices. Respondents rated the cooperation best in the area of promoting a positive attitude towards tourism and tourists, while the cooperation was rated worst in terms of involving guests in the activities of the local population. In addition to promoting a positive attitude, they rated it very highly with the aim of ensuring the safety of tourists and informing guests about the destination before and during their stay. The standard deviation values are greater than one. In addition, the asymmetry coefficients lie in the interval from -1 to 1, which indicates a symmetrical distribution of the data. The last concept, business performance is presented in table 4.

Business performance	Mean	Standard deviation	Asymmetry coefficient
We have made a profit	3,86	1,137	-,819
We have paid out the money invested in the previous year	3,57	1,209	-,546
We have increased occupancy rate	3,45	1,157	-,503
We have achieved a higher average price	3,19	1,186	-,365
We have increased the number of regular guests	3,38	1,197	-,330
We have increased the number of enquiries for accommodation	3,60	1,163	-,480
We have increased the number of new guests	3,79	1,131	-,687
We have reduced the cost	2,85	1,064	-,261

*Table 4: Descriptive analysis for business performance  
(Source: Author's research)*

The business performance (in table 4) was rated with average values between 2.85 and 3.86. Respondents rated the reduction in business costs the lowest, and the rating shows that they neither agree nor disagree with the statement. The highest average rating was given to the fact that renters made a profit, i.e. respondents partially agreed with this claim as well as other claims offered. The standard deviation is greater than 1 for all statements. The asymmetry coefficient is negative for all statements, which indicates a slight negative asymmetry. However, as the values are between -1 and 1, the data in this case is symmetrically distributed. On the basis of the results obtained, it was established that all the variables observed fulfil the condition of normality. Consequently, the degree of correlation between the observed variables is determined by Pearson's correlation coefficient. Since each construct is measured with several variables, a linear composite is formed, i.e. the average value of the scores of the individual statements that make up a particular concept. The hypothesis and results are presented below.

H1: The level of entrepreneurial characteristics of renters is significantly and positively related to the the designing accommodation offer in holiday rentals

Variables	Mean	Standard deviation	Asymmetry coefficient	Kurtosis, coefficient
Entrepreneurial characteristics - composite	4,10	,769	,825	10,294
Accommodation offer design - composite	4,14	,515	-,589	,759

*Table 5: Descriptive analysis for variables entrepreneurial characteristics and accommodation offer design  
(Source: Author's research)*

The results of the descriptive analysis in table 5 show that renters rate their entrepreneurial characteristic as very good. The deviations of the individual data from the average value are small.

	Entrepreneurial characteristics - composite	Accommodation offer design - composite
Entrepreneurial characteristics - composite	1	,488
Accommodation offer design - composite	,488	1
Significance	,000	,000

\* The correlation is significant at the level  $p = 0.01$

*Table 6: Correlation analysis between entrepreneurial characteristics and accommodation offer design  
(Source: Author's research)*

In the table 6 the correlation coefficient shows a medium, positive and statistically significant correlation between entrepreneurial characteristics and the design of the accommodation offer ( $R = 0.488$ ;  $P < 0.01$ ). The more emphasized the entrepreneurial characteristics are, the more successful the design of the accommodation offer is (and vice versa). According to the results obtained, the H1 hypothesis is accepted at the  $p = 0.01$  level

The relationship between entrepreneurial characteristics and the intensity of cooperation with the tourist board is analysed below, so that the H2 hypothesis is established in accordance with the above.

H2: The level of entrepreneurial characteristics of renters is significantly and positively related to the intensity of cooperation with the tourist board

Variables	Mean	Standard deviation	Asymmetry coefficient	Kurtosis coefficient
Entrepreneurial characteristics - composite	4,10	,769	,825	10,294
Intensity of cooperation - composite	3,29	,948	-,341	-,258

*Table 7: Descriptive analysis for variables entrepreneurial characteristics and intensity of cooperation*  
(Source: Author's research)

The results in table 7 show that renters rate their entrepreneurial characteristics very good, while the intensity of cooperation with the tourist board was rated as moderate. The deviations of the individual data from the average value are small. It can also be observed that both asymmetry coefficients lie within the limits of acceptability for a normal distribution (i.e. they lie in the interval from -1 to 1).

Varijable	Entrepreneurial characteristics - composite	Intensity of cooperation - composite
Entrepreneurial characteristics - composite	1	,322
Intensity of cooperation - composite	,322	1
Significance	,000	,000

\* The correlation is significant at the level  $p = 0.01$

*Table 8: Correlation analysis between entrepreneurial characteristics and intensity of cooperation*  
(Source: Author's research)

Table 8 shows the correlation coefficient that indicates a weak, positive and statistically significant correlation between the entrepreneurial characteristics of renters and the intensity of cooperation with the tourist board ( $R = 0.322$ ;  $p < 0.01$ ). The higher the entrepreneurial characteristics of the renters, the higher the intensity of co-operation (and vice versa). According to the results obtained, hypothesis H2 is accepted at the level of  $p = 0.01$ . On the basis of all the above, it can be concluded that the hypotheses of H1 and H2 are accepted.

## 5. CONCLUSION

Based on the analysis of the relevant scientific sources in the theoretical part and the results obtained in the empirical part of the study, the main conclusions and recommendations for the academic community and practitioners can be formulated. The most important aspect of holiday accommodation management are the entrepreneurial characteristics of the renters, as they have the greatest influence on the design of the accommodation offer. Thus, the higher the level of entrepreneurial knowledge, skills and competences of the renters, the better the offer is tailored to the needs of the guests, i.e. it can be said that it is in line with the market needs.

However, the correlation between the entrepreneurial qualities of renters is relatively weak when it comes to cooperation with the tourist board. This finding suggests that there is a need to work more collaboratively in this sense, as co-operation between all stakeholders is a prerequisite for creating an integrated product that includes both accommodation and other resources in the destination. These findings are supported by previously published research that sees the success of a business as directly related to the intangible aspects of quality, especially the knowledge, skills and competences of service providers (Rodriguez Perez & Ordonez de Pablo, 2003 in Sanchez-Gutierrez et al., 2016) which, together with innovation, are the main prerequisites for entrepreneurial behaviour. Although the study is geographically limited to one county, the results may be indicative for providers of holiday rental services and the study represents the starting point for future similar research.

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# LEADERSHIP'S ROLE IN ENHANCING ORGANIZATIONAL RESILIENCE: A STUDY OF RISK, FLEXIBILITY, AND SOCIAL CAPITAL

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## ABSTRACT

*This paper focuses on unraveling the multifaceted concept of organizational resilience, aiming to provide critical insights for practitioners, leaders, and scholars in the field. The study aimed to probe into the impact of risk assessment and management capabilities, the influence of flexible resource deployment, social capital, and the role of leadership in bolstering organizational resilience. A pilot study was conducted using a multiple-choice Likert-style questionnaire, which gathered data online from 23 respondents. The findings offer a nuanced understanding of how various organizational aspects contribute to resilience. The study highlights the significant interplay between risk management, organizational flexibility, social capital, and leadership in fostering an organization's ability to withstand and adapt to challenges. Furthermore, it proposes actionable strategies that organizations can implement to enhance their resilience, thereby contributing valuable knowledge to both academic research and practical applications in organizational development.*

**Keywords:** *Organizational Resilience, Risk Management, Resource Flexibility, Leadership, Resilience Strategies*

## 1. INTRODUCTION

Organizational resilience is the capacity of an organization to withstand shocks, adapt to changing circumstances, and emerge stronger from adversity (Ma, Xiao, and Yin, 2018). In an era characterized by frequent disruptions and unpredictability, the ability to bounce back and thrive in the face of adversity is vital (El Dessouky & Al-Ghareeb, 2020). In today's rapidly changing business environment, the concept of organizational resilience has gained paramount significance. Organizational resilience plays a critical role in navigating the volatile, uncertain, complex, and ambiguous (VUCA) business landscape. The primary objective of this paper, therefore, is to explore the multifaceted dimensions of organizational resilience and its importance in a rapidly changing world.

## 2. RESEARCH BACKGROUND

### 2.1. Historical Evolution of the Concept

The roots of organizational resilience can be traced back to various fields, including disaster management, military strategy, and organizational psychology (El Dessouky, & Al-Ghareeb, 2020). Its emergence as a distinct concept is likely due to the increasing complexity of modern organizations and the need to manage risks effectively. Also, organizational resilience has gained importance due to the accelerated pace of the changing business environment. Numerous models and theories have contributed to our understanding of organizational resilience. These frameworks offer different perspectives on the factors that enable organizations to bounce back from setbacks and thrive. Some of the most influential models and theories include the Cynefin framework (Ilieva et al., 2018; Lane et al., 2021), the Adaptive Cycle, and the Resilience Engineering approach, which are discussed in this section (Cavallo & Ireland, 2014).

## **2.2. The Importance of Building Resilience**

The 21st century has brought forth unprecedented challenges for businesses and institutions of all sizes. The COVID-19 pandemic is a recent example that highlighted the need for organizations to be resilient (Yang, Tang & Huang, 2023). While many businesses struggled to survive, those with resilient strategies in place not only endured but often found opportunities for growth amid the chaos (Xie et al. 2022; Mokline & Ben Abdallah, 2021). Organizational resilience is not just about surviving crises; it's about thriving despite them (Rai et al., 2021). The VUCA environment, characterized by rapid changes, geopolitical uncertainties, and disruptive technologies, demands a new approach to business sustainability (Santoso et al., 2020; Chawla & Lenka, 2018). Organizations need to proactively build their capacity to adapt, innovate, and withstand shocks. This paper aims to shed light on how organizations can achieve this and what factors play a pivotal role in their resilience. A preliminary review of the literature revealed that organizational resilience has regained research focus in the aftermath of the COVID-19 crisis, and there has been an increase in studies on the topic (Barbhuiya & Chatterjee, 2023). However, most of the recent studies have focused on one particular sector or type of organization, the healthcare sector (Barbhuiya & Chatterjee, 2023; Ignatowicz et al., 2023) or the hospitality or tourism sector (Schwaiger et al., 2022, Pathak & Joshi, 2021) or are in the context of SMEs operating in these sectors (Martín-Rojas et al., 2023; Saad et al., 2021). While this can be understood because the COVID-19 impact was prominently and immediately tangible in these sectors, there appears to be a lack of research that could further add to the understanding of OR in terms of its antecedent factors. The current study aimed to focus on this gap in research and as such, the following research objectives were set.

## **3. RESEARCH OBJECTIVE AND QUESTIONS**

### **3.1. Research Objectives**

The primary objective of this paper is to delve deep into the concept of organizational resilience and provide valuable insights for practitioners, leaders, and scholars. To achieve this objective, we will address several key questions:

### **3.2. Research Questions**

- Does risk assessment and management capability impact organizational resilience?
- Does the ability to flexibly deploy resources impact organizational resilience?
- What is the role of leadership in organizational resilience?
- What strategies can organizations employ to enhance their resilience?

## **4. LITERATURE REVIEW**

A comprehensive literature review was conducted to summarize the key findings of previous studies on organizational resilience. This section will present a synthesis of existing research, highlighting the factors that have been identified as crucial for enhancing resilience. Moreover, it will offer insights into the various methodologies employed in previous studies, providing a foundation for the methodology section to follow.

### **4.1. Organizational Resilience**

#### **4.1.1. Conceptualization of Organizational Resilience (OR)**

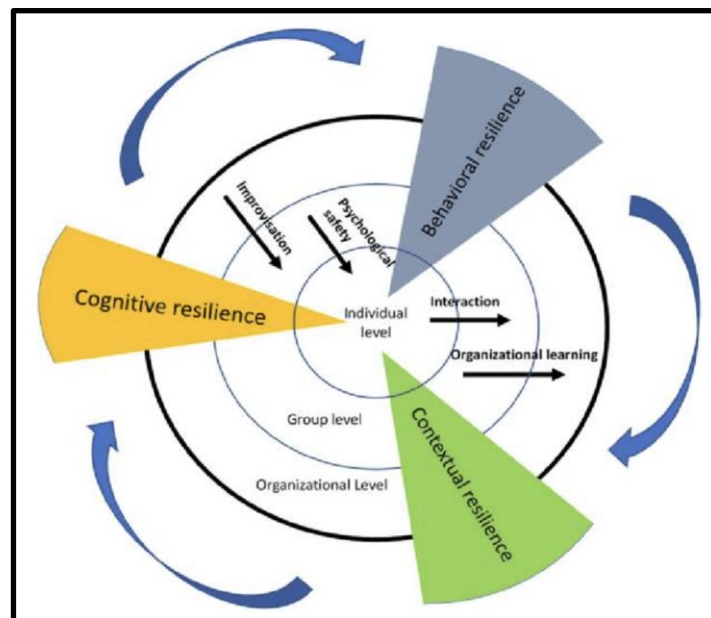
According to Hillmann & Guenther (2021), organizational resonance is the emergence of a stronger organization by maintaining a positive adjustment and resourcefulness during times of stress. A pre-condition for the above has been determined as the ability to stay flexible in the management of resources including cognitive, material, and relational ones (Hilligoss et al., 2023). Others have found OR to be based on three key attributes including the ability to manage vulnerabilities, the ability to be adaptive, and the ability to be aware of the situation (El



Dessouky, & Al-Ghareeb, 2020). Ma, Xiao, and Yin (2018) define the notion of organizational resilience as “an organizational capability to survive in, adapt to, bounce back from and often thrive in unexpected, sometimes disastrous events and, in a more broad sense, turbulent environments” (Ma, Xiao, and Yin, 2018: 253). In summary, it can be said that organizational resilience comprises a mix of capabilities and capacities that ensure that the organization can harness its resources dynamically and flexibly to meet unprecedented challenges, and to come out as a more experienced and wiser organization.

#### 4.1.2. Overview of Literature on Organizational Resilience (OR)

Several studies have endeavored to establish the factors that lead to OR. For example, Crichton, Ramsay & Kelly (2009) found a set of eight factors across organizations in the UK and New Zealand that included: safety culture, preparedness for emergencies, control systems, communication systems, resource availability, ability to anticipate accidents, focus on the longer-term, and training on non-technical skills. Similarly, Lengnick-Hall et al. (2011) and Lengnick-Hall and Beck (2009) have found that strategic human resource management was the key to OR. Later, Limnios et al. (2014) proposed that OR depends on adaptability, transience, rigidity, and vulnerability. According to Burnard, Bhamra, and Tsinopoulos (2018), OR is impacted by preparation and adaptation. Organizations that have a structured risk management approach and can flexibly allocate resources are more likely to demonstrate resilience. Ma, Xiao, and Yin (2018) have linked OR to dynamic capability at three levels - organizational, group, and inter-individual; and networked dimensions of context, cognition, and behavior. As seen in the following Figure 1 from Ma, Xiao, and Yin (2018, p.39), the three levels of dynamic capabilities enable cognitive, behavioral, and contextual resilience, through an environment of organizational learning, interaction, psychological safety, and improvisation.



*Figure 1: Three Levels of Dynamic Capabilities and Organizational Resilience*  
(Source: Ma, Xiao, and Yin (2018))

Similarly, Duchek (2020) considers OR to be based on capabilities related to anticipation, coping, and adaptation. Organizations that have invested in learning and training are likely to be able to build coping and adaptation-related attitudes and skills in their employees, which in turn impacts their resilience to meet challenges (Duchek (2020).

In addition, according to Hillman and Guenther (2021), organizational resilience is a function of resilient behaviors (which include overcoming denial and acceptance of paradoxical situations), resilience resources like structural, emotional, relational, and cognitive, and resilience capabilities like the ability to anticipate and make sense of the situation.

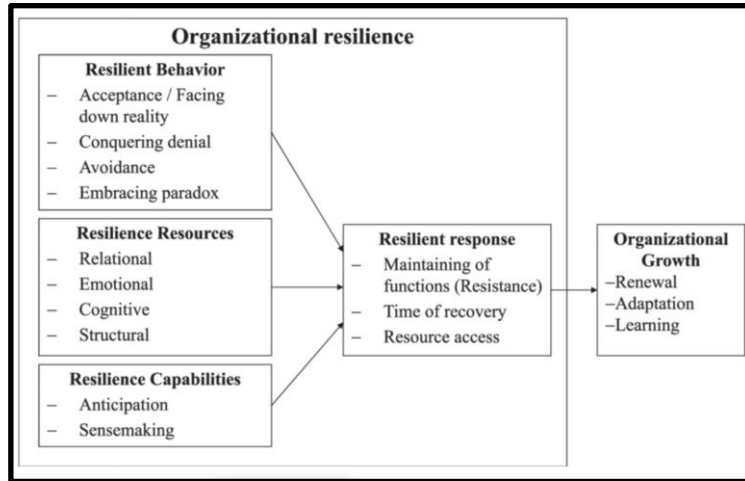


Figure 2: Conceptual Construct of Organizational Resilience  
(Source: Hillman and Guenther (2021, p.18))

As seen in above Figure 2, organizational growth is possible through an effective resilience response, which in turn is dependent upon resilience behaviors, resilience resources, and resilience capabilities. Additionally, some other studies have linked OR with risk awareness, cooperation, improvisation, and agility (Elmqvist et al., 2019; Weick and Sutcliffe, 2011; Zolli and Healy, 2012). While the above studies have largely pointed to organizational-level activities, attributes, or capabilities, there is also a growing body of research that has focused on OR as an outcome of individual-level capabilities and attributes. For example, according to Herbane (2019), self-efficacy is the key to organizational resilience. Entrepreneurs' attitudes and beliefs around meeting challenges or preventing crises lead them into four different categories, namely, *Reliant Neighbours*, *Light Planners*, *Rooted Strategists*, or *Attentive Interventionists* (Herbane, 2019), each stance affecting the overall organizational resilience of the organization. Other individual factors like well-being (Branicki, Sullivan-Taylor, and Livschitz (2018) and personal connections or social capital have also been recorded in the literature as having a link with OR. Branicki, Sullivan-Taylor, and Livschitz (2018) postulate that OR is based on contextual, relational, individual behavior, and attitudinal resources and have found that entrepreneurs who have experience directly dealing with adversity and the fact that they operate in informal or semi-formal organizational settings, makes them personally resilient which drives organizational resilience. Similarly, Pal, Torstensson, and Mattila (2014) have found that leaders' attentiveness and connectedness with their employees, traditionally associated with small family-owned businesses, are likely to make organizations more resilient in case of crises. It can be noted from the above review of literature on organizational resilience, that broadly, a common theme across studies is related to the management of risk, and flexibility in resource utilization (Pal, Torstensson, and Mattila, 2014; Leflar & Siegel, 2013; Crichton et al., 2009; Oh & Teo, 2009; Barasa et al., 2018; McManus et al., 2007; Arfiansyah, 2021). Also, it is through the management of social capital, individual-level factors, and attitudes (Doern, 2016; Herbane, 2019) that organizations can expect to be resilient.

## **5. CONCEPTUAL FRAMEWORK**

The above discussion gives a summary of the key findings from the review of the literature. Next, the key variables that can be drawn from the above review as having an impact on organizational research, are further explored below.

### **5.1. Risk Assessment and Management (RM)**

Effective risk assessment and management are at the core of resilience-building (Leflar & Siegel, 2013). Most research linking risk management and organizational resilience has, however, studied the enablers of risk management and their impact on organizational resilience. For example, Crichton et al. (2009) studied major risk and disaster outcomes in several organizations in the UK and found that those organizations that had a well-developed program for risk assessment and management were likely to succeed. Additionally, some of the ways that organizations can improve their risk assessment and management capabilities include learning from disaster reports or risk assessment management incidence reports from both within and outside of their sectors (Crichton et al., 2009). Another key enabler of risk management is found to be the enterprise risk management (ERM) capability - which has been found to directly lead to enhanced organizational resilience in 185 organizations in Singapore (Oh & Teo, 2009). Research has also found that a consistent strategic approach to risk assessment and planning to manage risks is an enabler of organizational resilience (Barasa et al., 2018); For example, organizations that pre-plan for continuity in supply even during foreseeable crisis, are likely to display organizational resilience (McManus et al., 2007). McManus et al. studied 10 different organizations during the crisis in New Zealand and made their conclusions. Similarly, in a study of 103 respondents, Arfiansyah (2021) found that organizational risk management was directly linked with organizational resilience for Indonesian companies during volatile business environments. As such, hypothesis 1 is set as, H1: RM directly impacts OR.

### **5.2. Organizational Resource Deploying Flexibility (OF)**

Organizational flexibility has been repeatedly linked in literature with organizational resilience (Davidescu et al., 2020). For example, Do et al. (2022) have found direct linkages between an organization's ability to enable flexible interaction between people and resources and its organizational resilience. Similar findings have been reported by Kooli, (2019) and Kooli (2021), where the authors have found a direct connection between an organization's ability and adaptability in changing times to organizational resilience. Chan et al. (2017) and Messabia et al. (2022) have also found that organizations that allow for flexibility in cooperation and resource allocation are better prepared to meet the challenges in a disruptive environment and to adapt and thrive in them. Similarly, in a study focused on educational organizations in Indonesia, Putra and Istiyani (2022) found that organizational flexibility in resource allocation led to organizational resilience. As such, hypothesis 2 is set as H2: OF directly impacts OR.

### **5.3. Social Capital**

According to Putnam (2001), social capital is the web of relationships and social connections among individuals within an organization's ecosystem, extending to external connections as well. Social capital comprises two integral facets. The first pertains to the social network, characterized by the extent, density, and robustness of interconnections (Siciliano et al., 2017). The second dimension revolves around trust, denoting the quality of interpersonal bonds within networks or among organizational members (Messabia et al., 2022). Trust in a team encompasses resources, goodwill, honesty, competence, and openness (Gray et al., 2016).

Employees use their social networks to engage in discussions concerning organizational issues and opportunities for enhancement, and reap the rewards of collaborative sharing (Hubers et al., 2018). Social capital enables cultivating trust and support and sharing vulnerabilities, which leads to organizational resilience (Gu, 2018). When trust is firmly rooted and relationships are less formal, employees feel secure sharing their vulnerabilities. This culture of open communication within organizations proves instrumental in brainstorming solutions, planning responses, and mitigating uncertainty during times of crisis (Siciliano et al., 2017). It effectively contributes to organizational resilience. Similarly, Putra and Istiyani (2022) reported that social capital led to organizational resilience. As such, hypothesis 3 is set as, H3: SC directly impacts OR.

## **5.4. Leadership**

### *5.4.1. Leadership and Risk Assessment*

Several studies have explored the impact of leadership on risk assessment and management as well. For example, according to Lisdiono et al. (2022), the management of risk is one of the core concern areas for leaders, while Borgelt and Falk (2007) postulate that good leaders focus on managing employee safety through risk management. Fernández-Muñoz et al. (2014) found that leaders who can enable their teams to take risks in a structured and managed manner are likely to bring forth innovation leading to enhancement of resilience for the organization. Since the leaders' role is magnified during a crisis, leaders are expected to be prepared to pre-empt and manage risks to meet such situations (Qing-Gui et al., 2012). Good leaders are likely to invest their time and energy in developing strategic thinking to support a proactive risk management plan. directly impacts OR.

H4a: Leadership moderates the relationship between Strategic Risk Assessment and OR.

### *5.4.2. Leadership and Organizational Flexibility*

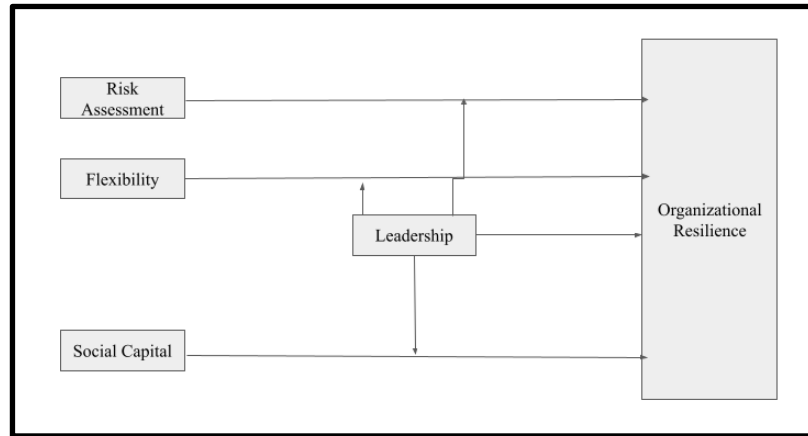
Several studies have found that leadership impacts organizational flexibility (Kocyigit & University, 2020). For example, Anning-Dorson (2021) found that where leadership enables employees, teams, and units to synchronize and coordinate seamlessly, organizational flexibility is encouraged. Similarly, leaders who are visionary and can envisage market changes, are likely to enable systems that can help create a better response to market changes (Gross, 2020; Madi et al., 2023).

H4b: Leadership moderates the relationship between Organizational Flexibility and OR.

### *5.4.3. Leadership and Social Capital*

Leadership is primarily linked with managing human capital as well as social capital or the collective networking process within the organization. Several studies have found that effective leaders are likely to harness social capital, which in turn leads to better organizational performance and preparedness for the future. More specifically, the relationship-oriented leadership style has been linked most strongly with the creation of social capital (Strömgren et al., 2017; McCallum & O'Connell, 2009; Golmoradi & Ardabili, 2016; Minckler, 2014)

H4c: Leadership moderates the relationship between Social Capital and OR.



*Figure 2: Conceptual Framework for the Study*

### 5.5. Gaps in Existing Research

While significant progress has been made in understanding organizational resilience, there are still notable gaps in the existing research. It is seen that while risk management, organizational flexibility, and social capital are identified as a factor in organizational resilience, not many studies have focused on the interplay of these factors, or within the scope of leadership, except in terms of attitudes of entrepreneurs toward family-owned businesses (Herbane, 2019; Branicki, Sullivan-Taylor and Livschitz, 2018; Doern, 2016; Herbane, 2019; Pal, Torstensson, and Mattila, 2014). This is a glaring gap owing to the dearth of studies focused on the impact of leadership on organizational resilience, especially in emerging economies (Madi et al., 2023). Also, as seen in the introduction, the majority of organizational studies have been focused on a few specific sectors. There appears to be a need for a global study that can assess the antecedent and moderators of organizational resilience in a non-sector-specific manner (Barbhuiya & Chatterjee, 2023; Ignatowicz et al., 2023; Schwaiger et al., 2022, Pathak & Joshi, 2021; Martín-Rojas et al., 2023; Saad et al., 2021). Also, as mentioned earlier, there is a focus on evaluating organizational resilience in terms of resource availability or scarcity or organizations' ability to assess risk (Leflar & Siegel, 2013; Crichton et al., 2009; Oh & Teo, 2009; Barasa et al., 2018; McManus et al., 2007; Arfiansyah, 2021), but there is a lack of research on the impact of the human factor - both in terms of social capital or leadership. The current study addresses these gaps by exploring social capital in addition to risk management and flexibility as the antecedent factor of OR and also focuses on the impact of leadership on these relationships.

## 6. METHODOLOGY

A positivist stance is the most suited approach for the current study as it enables making objective observations and drawing conclusions from the findings that are interpreted objectively (Coleman, 2019). Since the current research aims to explore the status quo or the relationship between variables that are already known, a positivist approach is expected to allow for objective data collection and analysis to establish those relationships (Primecz, 2020). A quantitative research methodology further enables the collection of data in formats that are non-contextual and hence objective data can be obtained, which can be analyzed using statistical methods (Fryer, Larson-Hall & Stewart, 2018). A pilot survey of 23 employees from diverse global organizations was conducted online using a multiple-choice Likert-style questionnaire. The questionnaire is developed using an eclectic approach which is shown in the following Table 1.

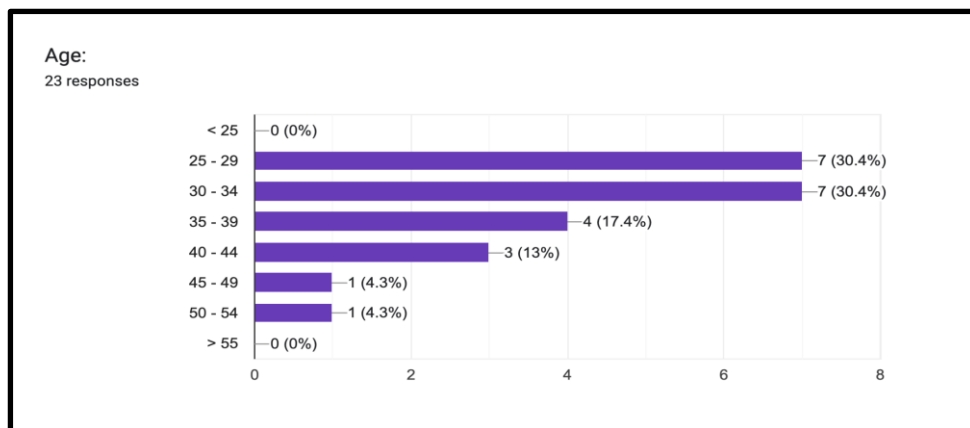
Variable	Adapted from
Organizational Resilience	Kantur & Say (2015)
Risk Assessment and Management	Dellana, Rowe & Liao, (2022)
Organizational Flexibility in Resource Allocation	Chen et al. (2021)
Social Capital	Kouvonen et al. (2006)
Leadership	Ethical Leadership Scale (Institute of Ethical Leadership)

*Table 1: Measurement Scales used in the Study*

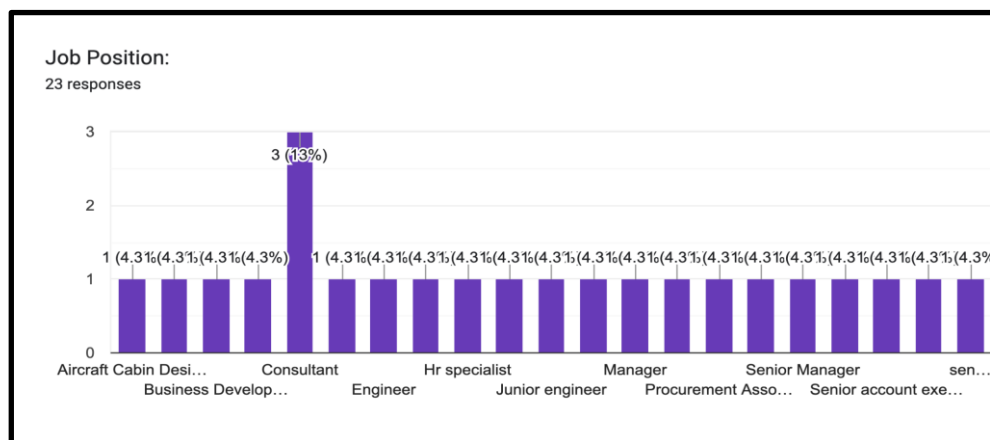
The data collected was analyzed for descriptive analysis using excel and for hypothesis testing using SEM (Structural Equation Modeling) using SmartPLS4.

## 7. FINDINGS

### 7.1. Descriptive statistics



*Figure 3: Respondents' Age*



*Figure 5: Respondents' Job Position*

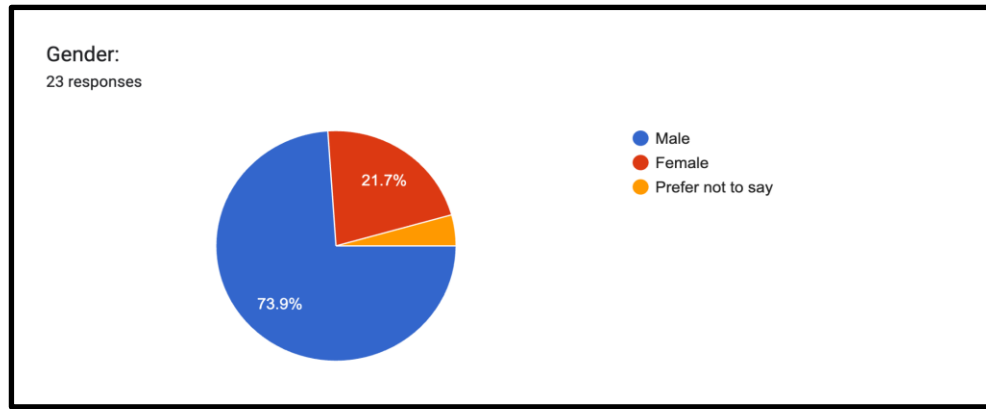


Figure 6: Respondents' Gender

It can be noticed from the above Figure 4 and 5 that the majority of the respondents belonged to 25-44 year-old age group, while predominantly they were males.

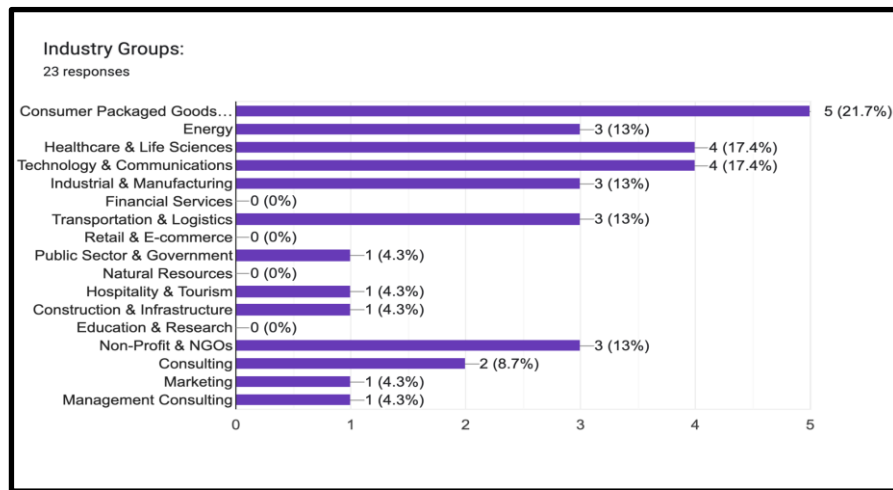


Figure 7: Respondents' Industry

The above Figures 6 and 7 indicate that the respondents came from a diverse set of job positions as well as industries and as such provide a holistic set of employees.

## 7.2. Statistical Analysis

### 7.2.1. Path Coefficients

Variables	Path Coefficients
L - OR	0.115
OF - L - OR	0.111
OF - OR	0.154
OR	-
RM - L - OR	0.059
RM - OR	0.315
SC - L - OR	0.042
SC - OR	0.485

Table 2: Path Coefficients

In examining the path coefficients, we find various relationships between the variables L, OF, RM, SC, and OR. Specifically, the coefficient for L - OR is 0.115, suggesting a positive yet weak relationship between L and OR, meaning as L increases, OR tends to increase modestly. The coefficient for OF - L - OR is 0.111, indicating a small, positive indirect effect of OF on OR via L. In contrast, the direct relationship between OF and OR, represented by a coefficient of 0.154, is somewhat stronger, though still relatively modest. Further analysis shows a very weak indirect effect of RM on OR through L, as indicated by the RM - L - OR coefficient of 0.059. However, the direct relationship between RM and OR is more pronounced, with a coefficient of 0.315, suggesting a moderate and positive correlation. This pattern is even more evident in the case of SC, where the SC - L - OR coefficient is a minimal 0.042, indicating an extremely weak indirect effect, while the direct relationship between SC and OR is quite strong, with the highest coefficient in the dataset at 0.485. This pattern signifies that SC's direct impact on OR is substantially more significant compared to its indirect effect through L. In summary, the above Table 2 suggests that:

- Direct relationships (like SC - OR and RM - OR) are stronger than indirect relationships (like SC - L - OR).
- The effects of L, OF, and SC on OR vary, with SC having the strongest direct impact on OR.
- The indirect effects involving L (OF - L - OR, RM - L - OR, SC - L - OR) are relatively weak, suggesting that L may not be a strong mediator in these relationships.

It needs to be noted that while path coefficients provide insight into the strength and direction of relationships, they don't imply causation and should be interpreted within the context of the overall model.

#### 7.2.2. *F-Square*

Next, the following Table 3 shows the F-square values for the data.

Variables	F-square
L - OR	0.013
OF - L - OR	0.021
OF - OR	0.039
OR	
RM - L - OR	0.002
RM - OR	0.135
SC - L - OR	0.002
SC - OR	0.205

*Table 3: F-Square Values*

**L - OR (0.013):** This value suggests a very small effect size for the impact of L on OR. An F-square value of 0.013 indicates that the influence of L on OR is minimal.

**OF - L - OR (0.021):** This indicates a slightly larger, yet still small, effect size for the indirect relationship where OF impacts OR through L. An F-square value of 0.021 suggests a small but slightly more noticeable effect than the direct impact of L on OR.

**OF - OR (0.039):** Here, the effect size for the direct relationship between OF and OR is small to medium. An F-square value of 0.039 indicates that OF has a more substantial direct effect on OR compared to its indirect effect through L or the effect of L on OR.

**RM - L - OR (0.002):** This very small F-square value suggests an extremely weak indirect effect of RM on OR through L, almost negligible.



**RM - OR (0.135):** This value indicates a moderate effect size for the direct relationship between RM and OR. An F-square value of 0.135 suggests that RM has a notably stronger direct impact on OR compared to its indirect impact through L.

**SC - L - OR (0.002):** Similar to the RM - L - OR relationship, this F-square value is very small, indicating a very weak indirect effect of SC on OR through L.

**SC - OR (0.205):** This is the largest F-square value in your data, suggesting a strong effect size for the direct relationship between SC and OR. An F-square value of 0.205 indicates a significant impact of SC on OR.

In summary, it can be said that:

- The direct relationships involving RM and SC with OR (RM - OR and SC - OR) show the strongest effect sizes.
- The indirect effects (OF - L - OR, RM - L - OR, SC - L - OR) and the direct effect of L on OR are very weak.
- OF's direct effect on OR is somewhat more substantial but still in the small to medium range.
- These F-square values indicate the magnitude of the impact that each independent variable has on the dependent variable (OR), with higher values indicating a stronger effect.

### 7.2.3. F-Square

Next, we consider the p values and t-statistics in Table 4 below:

	Original Sample	Sample Mean	Standard Deviation	t-statistics	p-value
L - OR	0.115	0.163	0.339	0.338	0.735
OF - OR	0.154	0.171	0.385	0.4	0.689
RM - OR	0.315	0.323	0.323	0.977	0.329
SC - OR	0.485	0.431	0.378	1.286	0.199
OF - L - OR	0.111	0.028	0.388	0.287	0.774
RM - L - OR	0.059	0.106	0.513	0.115	0.909
SC - L - OR	0.042	0.149	0.444	0.095	0.924

Table 4: p values and t-statistics for the data

## 7.3. Hypothesis Testing

### 7.3.1. Dependent Relationships

#### 7.3.1.1. Risk Assessment and Management (RM) and Organizational Resilience (OR)

The moderate F-square value (0.135) and the relatively higher path coefficient (0.315) indicate a significant direct effect of RM on OR. Although the statistical tests (t-statistic (0.977) and p-value (0.329)) are not strongly supportive, the combined evidence points towards a noteworthy impact. As such, the following hypothesis is accepted: *H1: Strategic Risk Management directly impacts OR.*

#### 7.3.1.2. Organizational Flexibility and Organizational Resilience (OR)

The somewhat larger F-square value (0.039) indicates a small to medium effect size of OF on OR. This is further reflected in the path coefficient of 0.154, suggesting a slightly positive relationship. However, the low t-statistic (0.4) and the high p-value (0.689) provide insufficient evidence to support a strong direct effect.

Thus, while there are indications of an effect based on the F-square value and path coefficient, the overall statistical tests caution against concluding a robust impact. We can accept the hypothesis, H2: Organizational Flexibility directly impacts OR with some caution.

#### *7.3.1.3. Social Capital and Organizational Resilience (OR)*

The direct impact of SC on OR is indicated by a strong F-square value of 0.205, signifying a significant effect size. This is complemented by the highest path coefficient in the dataset at 0.485, pointing towards a substantial direct relationship. Additionally, the t-statistic stands at 1.286, the highest among the evaluated cases, further supporting the presence of a strong effect. However, the p-value of 0.199, while lower than in other cases, does not conclusively affirm this relationship. Overall, the combination of a high F-square value, a significant path coefficient, and the highest t-statistic suggest a robust direct effect of SC on OR, but the interpretation is tempered by the p-value not reaching conventional levels of statistical significance. As such, the H3: Social Capital directly impacts OR can be accepted with caution.

#### *7.3.1.4. Leadership and Organizational Resilience (OR)*

The F-square value for L impacting OR directly is very small at 0.013, indicating a minimal effect size. This is supported by a low t-statistic (0.339) and a high p-value (0.735), which together suggest a lack of strong statistical evidence for a significant impact. Although the path coefficient is implied to be weak, the combined metrics reinforce the conclusion that L's direct effect on OR is negligible, if present at all. As such, the H4: Leadership directly impacts OR can be accepted with caution.

### *7.3.2. Moderator Relationships*

#### *7.3.2.1. Leadership, Risk Assessment and Management, and Organizational Resilience (OR)*

The indirect effect of RM on OR through L is characterized by an F-square value of only 0.002, indicating a very small effect size. This is further reflected in the path coefficient, which is also minimal at 0.059. These metrics together — the very low F-square value and the small path coefficient — point towards an extremely weak influence of RM on OR when mediated through L. *H4a: Leadership moderates the relationship between Strategic Risk Assessment and OR* can be accepted tentatively in this case.

#### *7.3.2.2. Leadership, Organizational Flexibility, and Organizational Resilience (OR)*

The F-square value of 0.021 for the indirect effect of OF on OR through L suggests a small effect size. This is further evidenced by a path coefficient of 0.111, which aligns with the notion of a modest impact. The combination of a small F-square value and a correspondingly modest path coefficient indicates that the influence of OF on OR, mediated through L, is present but relatively limited in magnitude. As such, hypothesis *H4b: Leadership moderates the relationship between Organizational Flexibility and OR*, can be accepted with caution.

#### *7.3.2.3. Leadership, Social Capital, and Organizational Resilience (OR)*

For the indirect effect of SC on OR through L, the F-square value is notably small at 0.002, suggesting a very minimal effect size. This is echoed in the path coefficient, which is similarly low at 0.042. The combination of such a negligible F-square value and a minor path coefficient underscores the extremely weak nature of the indirect influence that SC exerts on OR via L. The *H4c: Leadership moderates the relationship between Social Capital and OR* is acceptable tentatively only.

## **8. DISCUSSION**

### **8.1. Direct Impact of Leadership (L) and Other Factors on OR**

The findings regarding the effect of L on OR (F-square: 0.013, t-statistic: 0.339, p-value: 0.735) align with literature emphasizing the importance of effective leadership in risk assessment and management for enhancing organizational resilience (Leflar & Siegel, 2013; Borgelt & Falk, 2007). However, the weak statistical evidence for L's direct impact suggests that while leadership is crucial, its effect on resilience might be more nuanced and mediated through other organizational factors. Conversely, Social Capital (SC) shows a strong direct impact on OR (F-square: 0.205, t-statistic: 1.286, p-value: 0.199). This finding is consistent with the emphasis on SCs in crisis situations as key contributors to organizational resilience (McManus et al., 2007). The analysis also highlights the importance of flexibility and adaptability in organizational resilience. Direct relationships like Risk Assessment and Management with OR, and Organizational Flexibility with OR, which show stronger effects, might be indicative of the flexibility in resource management and supply chain operations being crucial in building resilience. This aligns with literature findings that link organizational flexibility with resilience (Davidescu et al., 2020; Do et al., 2022; Kooli, 2019, 2021).

### **8.2. Indirect Effects and the Role of Leadership as a Moderator**

The indirect effects (e.g., OF - L - OR, RM - L - OR) and the role of L as a moderator in these relationships are generally weak. This suggests that while leadership is a critical component in risk management and organizational resilience, its role might be more about enabling and supporting other processes and functions within the organization. This perspective resonates with findings that leadership plays a significant role in enhancing enterprise risk management (ERM) capabilities (Oh & Teo, 2009) and in facilitating a strategic approach to risk assessment and management (Barasa et al., 2018). Although not directly measured in the statistical analysis, the concept of social capital, which includes trust and robust social networks (Putnam, 2001; Siciliano et al., 2017), could be a mediating factor in these relationships. The weak moderating effect of leadership might suggest that fostering social capital could be a more effective strategy for leaders to enhance organizational resilience. Nevertheless, the findings highlight a broader role of leadership beyond direct impacts. Effective leaders might contribute to organizational resilience by fostering an environment that promotes flexibility, enhances ERM capabilities, and nurtures social capital (Strömgren et al., 2017; McCallum & O'Connell, 2009). This broader role includes envisioning market changes and enabling systems for better market responsiveness (Gross, 2020; Madi et al., 2023). In summary, the statistical analysis, when contextualized within the existing literature, suggests that while direct impacts of certain factors on organizational resilience are evident, the role of leadership and other indirect factors might be more about enabling, supporting, and creating an organizational environment conducive to resilience. This reinforces the multi-dimensional nature of organizational resilience, which is not solely dependent on direct actions but also heavily influenced by the underlying organizational culture, flexibility, and social dynamics.

## **9. CONCLUSIONS AND RECOMMENDATIONS**

### **9.1. Conclusions**

The analysis of the relationships involving various organizational factors and their impact on organizational resilience (OR) presents nuanced insights. Specifically, the role of leadership (L) as a moderator in the dynamics between different factors and OR has been closely examined. The statistical findings indicate insufficient evidence for L's moderating role in the relationships between OF and OR, RM and OR, as well as SC and OR. This suggests that leadership may not significantly alter the way these factors influence organizational resilience.

On the other hand, direct relationships involving RM and SC with OR show stronger effects, which are evident through their path coefficients and F-square values. However, the interpretation of these relationships should be approached with caution due to the lack of robust support from statistical tests, including t-statistics and p-values. Overall, while some relationships show potential influence, the mixed statistical support warrants a cautious interpretation of the data, emphasizing the complexity of factors contributing to organizational resilience.

## 9.2. Recommendations for Future Research

Based on the findings and conclusions drawn, several recommendations for future research can be proposed.

- *Further Exploration of Leadership's Role:* Given the inconclusive evidence regarding the moderating role of leadership, future research could explore other dimensions of leadership and how they might influence organizational resilience. This could include examining leadership styles, decision-making processes, and communication strategies.
- *Qualitative Analysis:* Qualitative studies, such as case studies or interviews with organizational leaders, could add depth to the understanding of how leadership and other factors contribute to organizational resilience in real-world scenarios.
- *Broader Range of Factors:* Expanding the range of factors examined could provide a more comprehensive understanding of what drives organizational resilience. This could include factors such as organizational culture, employee engagement, technological adoption, and market dynamics.
- *Cross-Industry Comparison:* Conducting comparative studies across different industries could uncover how industry-specific challenges and opportunities affect the relationships between these variables and organizational resilience.
- *Impact of Social Capital:* Given the role of social capital in organizational dynamics, future research could explicitly include measures of social capital to understand its impact on resilience.

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## **APPENDIX**

### **Research Questionnaire**

Age:

Gender:

Job Position:

Industry:

### **Organizational Resilience**

1. Our organization stands straight and preserves its position  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
2. Our organization is successful in generating diverse solutions  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
3. Our organization rapidly takes action  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
4. Our organization develops alternatives in order to benefit from negative circumstances  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
5. Our organization is agile in taking required action when needed.  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
6. Our organization is a place where all the employees engaged to do what is required from them  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
7. Our organization is successful in acting as a whole with all of its employees  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
8. Our organization shows resistance to the end in order not to lose  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
9. Our organization does not give up and continues its path  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

### **Risk Management**

10. We often simulate risk events to assess our ability to respond effectively  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
11. We make sure all employees in our organization have a good understanding of our internal risk management process  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
12. We typically rank potential risks based on quantitative analysis  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
13. Our organization has a mature internal risk management process that ensures our internal operations are not easily disrupted  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
14. When a risk event occurs, we usually have a well-defined contingency plan available to reduce the impact of the event  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
15. We employ a mature systematic process for scanning the business environment to identify potential risk events  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree
16. Our organization regularly provides risk management training to our Employees  
Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

17. We routinely share risk-specific information across departments within our organization

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

18. Risk management is often a topic of discussion in our organization

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

### **Organizational Flexibility**

19. We are able to match strategic objectives and operational capabilities very well

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

20. We have a deep awareness of our situation in time

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

21. We will make timely adjustments to our positioning

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

22. We are able to quickly deploy resources in times of crisis

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

23. We are able to adjust our resource allocation to meet any challenges quickly

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

### **Social Capital**

24. Our supervisor treats us with kindness and consideration

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

25. Our supervisor shows concern for our rights as an employee

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

26. We have a 'we are together' attitude

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

27. People keep each other informed about work-related issues in the work unit

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

28. People feel understood and accepted by each other

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

29. Members of the work unit build on each other's ideas in order to achieve the best possible outcome

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

30. We can trust our supervisor

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

### **Leadership**

1. Our leaders act with integrity (keep promises and take responsibility)

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

2. Our leaders do not turn away from helping others

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

3. Our leaders treat people with genuine care affection

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

4. Our leaders are able to live with contradiction and anxiety

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

5. Our leaders are prepared to wait for closure

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

## PROTECTION OF THE CHILD'S PERSONAL DATA IN THE EDUCATIONAL CONTEXT

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### **ABSTRACT**

*Both the right to education and the right to protection of personal data are fundamental rights of the child. The right to education is indispensable to the furtherance of human rights and as such it is generally considered to be of essential importance in a democratic society. It is a highly complex task to organise education system in a way which enables fulfilling basic aims of education while simultaneously protecting full range of the rights of the child which interact with and within an educational setting, including the child's right to protection of personal data. Children's personal data require higher level of protection as children are less aware of the risks and consequences of sharing data and of their rights. Due to numerous and potentially serious implications of children's data processing in an educational context, protection of the child's personal data is by no means an easy endeavour for none of the actors involved – legislator, educational authorities, teachers, parents/legal guardians or children themselves. In assessing the best interests of the child it is necessary to balance and reconcile a child's right to protection of personal data with other child's rights but also with other children's rights as well as the rights of legal guardians to act on behalf of the child. The aim of this research is to determine the principles, rights and obligations which apply to processing of children's personal data in an educational setting. Besides exploring the relevant international and European standards, the author is particularly interested to establish how children's personal data are safeguarded within the educational setting in Croatia and which de lege ferenda changes would be appropriate in order to strengthen this protection further.*

**Keywords:** *child's rights, educational context, right to education, right to protection of personal data*

### **1. INTRODUCTION**

The right to life, survival and development of the child, as enshrined in Article 6 of the United Nations Convention on the Rights of the Child (1989; hereinafter: CRC), is undoubtedly the most fundamental of all human rights of the child. The right to education (CRC, Arts. 28 and 29) is considered to be one of the rights particularly relevant for ensuring the development of the child to the maximum extent possible (Nowak, 2005, 2, 7). Global consensus on the right to education as being essential for enabling an individual to live with dignity is reflected also in the interpretation of the term 'education' as encompassing the entire process of social life by means of which people learn to develop consciously within, and for the benefit of, the national and international communities, the whole of their personal capacities, attitudes, aptitudes and knowledge (Hodgkin and Newell, 2007, 408, 411). The right to protection of personal data is also one of the fundamental rights of the child, which is gaining importance every day in parallel with the increasing influence of digital technologies in children's lives. Education system should be organised in a way which enables fulfilling basic aims of education while simultaneously protecting full range of the rights of the child which interact with and within an educational setting. This is a very complex task because within an educational setting a whole range of rights and interests of different subjects – children, parents, educational staff, public - intersect and clash, which requires a lot of effort in reconciling them in a way that will ultimately lead to the best interests of every individual child (CRC, Art. 3) being satisfied. "Educational setting" is an environment for the delivery of education to a child, subject to the jurisdiction of

States (COE, 2021, 14). It is an environment where the children spend a lot of their time, and also one within which children are disempowered in their relationship with a public authority due to the lack of maturity and sufficient level of understanding (COE, 2021, 7). Consequently, it is necessary to keep in mind that children do not lose their human rights by virtue of passing through the school gate and that the education must be provided in a way which ensures the respect for the inherent dignity of the child and enables the child to express his/her views freely in accordance with CRC Article 12 (CRC Committee, 2001, § 8). The indispensable role of parents and wider family in exercising all of the child's rights is acknowledged in international law, however, the rights of legal guardians are subject to child's rights (Hodgkin and Newell, 2007, 411) and should always be balanced against the child's own rights under the CRC (Verheyde, 2006, 48). Regardless of the fact that the CRC does not mention the right to protection of the child's personal data *per se*, its Article 16 provides for the child's right to be protected against arbitrary or unlawful interference with his/her privacy in all situations, including within the family and all institutions. This right was considered as encompassing issues related to information and records stored about the child long before (more details in: Hodgkin and Newell, 2007, 203-211) the data protection emerged as a distinct right. This paper aims, firstly, to explore the main principles, rights, and obligations relevant for processing of children's data in an education setting. The focus will be on European standards which, as it will be shown later, hallow the relevant provisions of the CRC mentioned *supra*. Under the law of the Council of Europe (hereinafter: COE), the protection of personal data has been developing in parallel under the Convention no. 108 for the protection of individuals with regard to automatic processing of personal data, which entered into force in 1985 and was modernised in 2018 (hereinafter: Convention 108+), and the Convention for the Protection of Human Rights and Fundamental Freedoms (1950; hereinafter: ECHR), more precisely the jurisprudence of the European Court of Human Rights (hereinafter: ECtHR) that has been interpreting it as part of the right to respect for private and family life as guaranteed by Article 8 of the ECHR. In addition, COE adopted Guidelines on Children's data protection in an education setting (COE, 2021), thus expressing awareness of the fact that entry of digital tools in classrooms enables and simplifies the delivery of information and sharing educational content but at the same time inevitably enables access to children's personal data for various stakeholders, generating lifelong risks for children's rights (COE, 2021, 5-6). After a few decades of falling behind the COE, the European Union (hereinafter: EU) took the lead in regulating data protection by recognising it as autonomous human right in Article 8 of the Charter of Fundamental Rights of the European Union (hereinafter: EU Charter), Article 16 of the Treaty on the Functioning of the European Union (hereinafter: TFEU), and finally by adopting the GDPR Regulation (hereinafter: GDPR) in 2016. After the analysis of the most relevant European instruments, our interest will focus on establishing how children's personal data are protected within the Croatian education system and what changes should be introduced in order to improve this protection further.

## **2. EUROPEAN APPROACH TO THE PROTECTION OF PERSONAL DATA OF CHILDREN IN AN EDUCATION SETTING**

### **2.1. Outline of the basic concepts of the protection of personal data in European law**

Under the EU and the COE law the key concepts in the area of personal data protection are basically defined in the same way. "Personal data" is any information relating to an identified or identifiable natural person (GDPR, Art. 4, para. 1; Convention 108+, Art. 2(a)). Identification of the child requires elements (name, address, photograph, passport number etc.) which enable distinguishing him or her from other children (FRA and COE, 2018, 89, 92). Processing of the so-called sensitive data, including data revealing religious or other beliefs, racial or ethnic origin, health related data (GDPR, Art. 9; Convention 108+, Art. 6), is in principle prohibited

and allowed only when additional strict conditions are satisfied. "Processing" includes any operation performed on personal data, such as collection, recording, structuring, storage, disclosure, erasure, destruction (GDPR, Art. 4 para. 2; Convention 108+, Art. 2(b)). Processing personal data about an identified or identifiable person makes this person the "data subject" (FRA and COE, 2018, 83). A data "controller" determines the purposes and the means of processing, while the data "processor" processes the data on behalf of the controller (GDPR, Art. 4, paras. 7 and 8; Convention 108+, Art. 2(d)(f)). Natural persons are not assuming the position of controllers by processing personal data of others in the context of purely personal or household activities. Namely, parents often take photos of their children participating in school plays and similar events, however, as long as it is for private use only (e.g., family photo album), GDPR does not apply. On the other hand, if a school is filming or photographing students on those same occasions, rules on data protection will apply.

## **2.2. The EU law framework for the protection of children's personal data in an education setting**

Wider EU law context within which the protection of children's personal data in an educational setting can be exercised includes promotion of the rights of the child as one of the objectives of the EU (TEU, Art. 3). Reflecting the importance attached to it under international law, Article 14 of the EU Charter recognises the right to education, leaving the responsibility for organisation of education systems and the contents of teaching to Member States (TFEU, Arts. 165 and 166). Rights of the child are recognised in Article 24 of the EU Charter which mirrors some of the CRC provisions, namely the principle of the best interests of the child, the child's right to be heard in all matters concerning him/her, and the principle of the evolving capacities of the child. Article 52(3) aims to ensure consistency and equivalent protection of rights within the EU and the COE human rights system (Groussot and Gill-Pedro, 2013, 246) by establishing that when the EU Charter rights correspond to ECHR provisions, the meaning and scope of those rights shall be the same as those laid down by the ECHR. Consequently, as the right to private life under Article 8 ECHR includes the right to the protection of personal data, by virtue of EU Charter Article 52(3) data protection is also covered by Article 7 of the EU Charter which safeguards the right to respect for every individual's private and family life (Lock, 2019a, 2115-2116). This interpretation is accepted also in the case law of the CJEU (Lock, 2019b, 2123). The right to protection of personal data as enshrined in Article 8 of the EU Charter and in the GDPR apply to everyone, including children. In addition, GDPR refers expressly to children in several provisions that can be read as providing (some) guidance on the application of general rules to the protection of personal data of children who are identified as "vulnerable natural persons" (GDPR, Recital 75), in need of specific and enhanced protection with regard to their personal data as they may be less aware of the risks and consequences as well as their rights in relation to the data processing (GDPR, Recital 38). Seven core principles of personal data protection can be identified in the EU Charter and the GDPR. Lawfulness is secured if data processing is carried out on the basis of consent of the data subject or some other legitimate ground, including necessity to enter a contract, a legal obligation, performing a task in the public interest (EU Charter, Art. 8, para. 2; GDPR, Art. 5, para. 1(a)); the latter is inherent to education setting. Transparency principle requires that children as data subjects and their legal guardians are informed timely about how their data are being used, while fairness could be understood as processing personal data in an ethical manner (FRA and COE, 2018, 118-120) which is particularly important when the data subject is a child. Processing is legitimate as long as it is limited to its initially specified purpose (EU Charter, Art. 8, para. 2; GDPR, Art. 5, para. 1(b)) and to the data strictly necessary for achieving that purpose (GDPR, Art. 5, para. 1(c)), without disproportionate interference with the rights and interests of the data subject (FRA and COE, 2018, 125, 127).

Educational institutions as controllers are responsible for the accuracy of the data (GDPR, Art. 5, para. 1(d)). The child and his/her parents have the right to request the controller to rectify or erase inaccurate data (EU Charter, Art. 8, para. 2; GDPR, Arts. 15-17). Personal data can be kept only for as long as it is necessary (GDPR, Art. 5, para. 1(e)). Specific time limits are not envisaged by GDPR (nor Convention 108+), however national laws may set such time frames for storing data. The principle of data security, crucial for preventing negative effects of data processing for the data subject (possibly life-long effects in case of a child), requires implementation of appropriate technical and organisational measures in order to avoid accidental, unauthorised or unlawful access, modification, disclosure, loss or destruction of data (GDPR, Recital 39, Art. 5, para. 1(f)). Controllers and processors carry the burden of responsibility for compliance with the data protection principles (EU Charter, Art. 8, para. 3; GDPR, Arts. 5, para. 2, 28, para. 3(c)(d), 30, 37). Data processor in an education setting can be, for example, private security company that has installed a video surveillance system in the school and has access to the recordings. Educational institutions are not obliged to have a data processor as Article 28 of the GDPR allows them to entrust a specific part of data processing to the processor, but they must be careful to regulate their mutual rights and obligations in detail by contract. The right to protection of personal data is a qualified right (Dalla Corte, 2020, 53), however its limitations have to be necessary and aim to meet objectives of general interest recognised by the EU or the need to protect the rights and freedoms of others (EU Charter, Art. 52, para. 1). These criteria correspond to those pertaining to the right to private and family life under ECHR Article 8 (CJEU, 2010, § 52; CJEU, 2011, § 48). This suggests that the child's right to protection of personal data could be limited for the purposes of protecting rights and freedoms of others; at the same time, since the protection of children's rights is one of the objectives of the EU (TEU, Art. 3), the right to personal data protection of others could be limited on the basis of both the general interest and the rights of the child. When processing is performed on the basis of the legitimate interest of the controller or a third party, it is expressly allowed (see GDPR, Art. 6, para. 1(f)) for such interests to be overridden by interests or fundamental rights and freedoms of the data subject, especially where the data subject is a child. Article 8 of the GDPR specifies conditions applicable to child's consent in relation to information society services (social networking sites, platforms for downloading music and buying online games etc.); where such services are offered directly to a child, data processing can lawfully rely on the child's consent if he/she is 16 years old; where the child is younger, the consent of the legal guardian is required. Objections and doubts were provoked by Article 8 not only because it allows Member States to set a lower age threshold (not below 13), which excludes the possibility of a coherent EU approach. It has been questioned also because it was drafted without consulting experts or children themselves; setting fixed age requirement collides with the CRC and the EU Charter which request that the child's views and evolving capacities be taken into consideration; it leaves children between the ages of 16 and 18 without specific protection; it is doubtful to what extent it can be implemented, taking into account, for example, that parents are not necessarily able to better assess the situation and that accessing the internet through mobile phones makes overseeing the child's online activities very difficult (Rosani, 2020, 107-111). Further, age requirement puts a heavy burden on controllers who need to periodically check the data subject's age. In any case, relying on parental consent after the child reaches the specified age will render the processing unlawful (Kosta, 2020, 362). It should be mentioned that very high fines are prescribed for those who violate Article 8 (GDPR, Art. 83, para. 4(a)), as Instagram (Meta Ireland) recently found out when the Irish Data Protection Authority adopted the first EU-wide decision on children's data protection rights, issuing a record GDPR fine of 405 million euros for public disclosure of email addresses and phone numbers of children using the Instagram business account (EDBP, 2022).

The strict focus on information society services offered directly to children is partly understandable given that the research shows children spend more and more time online. Between 38% (Spain) and 73% (Serbia) of children aged 9–16 report visiting social networking sites daily or more often. Using the internet for schoolwork ranges between 16% (Poland) and 46% (Lithuania). However, despite the GDPR's age limit, between 11% (Germany) and 45% (in Serbia) of 9 to 11-year-olds report visiting such sites every day (Smahel et al., 2020, 29). Although it is indicated that the legal guardian's consent should not be necessary in the context of preventive or counselling services offered directly to a child (GDPR, Recital 38), the fact remains that the scope of Article 8 GDPR is quite narrow and it does not even cover all online services, but only information society services. The latter should be understood as covering services that target either only children or both children and adults (Kosta, 2020, 360). In accordance with the definition of 'consent' (GDPR, Art. 4(11)), consent of the child or the holder of parental responsibility has to be freely given, specific, informed and unambiguous. Any information addressed to the data subject has to be provided in such a clear and plain language that the child can easily understand (GDPR, Recital 58, Art. 12, para. 1). Besides indicating the duty of the controller to differentiate between adults and children when choosing forms of expression, the emphasis on communications adapted to children has a punitive function in that it suggests that incompliance with the respective duty will be sanctioned more harshly when the affected party is a child (Polčák, 2020, 407). This should also apply to the communication exercised under the right of access. The GDPR remained silent with regard to who should submit an access request where the child is data subject, however, it should be acceptable that children themselves make such requests, especially if processing is performed on the basis of the child's consent (Zanfir-Fortuna, 2020, 461). The right to rectification of data and the 'right to be forgotten' are considered to be of particular relevance where the data subject has given his/her consent as a child, thus not being fully aware of the risks involved in the processing, and later wants to erase such personal data. The data subject should be able to exercise that right notwithstanding the fact that he/she is no longer a child (GDPR, Recital 65, Arts. 16 and 17). There are no special requirements pertaining to the child's or his parents' right to withdraw consent so the general rule applies established in Article 7 of the GDPR, meaning that the withdrawal is possible at any time and has to be as easy as it was to give consent. Where children access online services, organisations have to deploy child-specific data protection measures in order to reduce or avoid risks children are exposed to (GDPR, Art. 35). It is indicated that such protection is particularly important when children's personal data are used for marketing purposes and that solely automated decision-making, including profiling, should not apply to children (GDPR, Recitals 38 and 71; FRA and COE, 2022, 229-230).

### **2.3. Protection of children's personal data in an education setting under the Council of Europe law**

#### *2.3.1. Contribution of the European Court of Human Rights to the protection of children's personal data*

Convention 108+ established essential principles of data protection which form the core of all subsequent regulatory initiatives (Dalla Corte, 2020, 33), including the GDPR. Further, the right to data protection is safeguarded as part of the private and family life under Article 8 of the ECHR, just like it is protected under Article 7 of the EU Charter. In order to avoid repetitions, this section of the paper will focus on what can be considered as particularly relevant for the protection of children's personal data in an education setting within the COE system. While it undoubtedly applies to children, Convention 108+ mentions them expressly only once, in Article 15 para. 2(e) which stipulates that, while raising awareness on data protection issues, the national supervisory authorities should specifically address children through adapted ways and languages.

The ECtHR considers the right to protection of personal data to be of fundamental relevance for an individual's ability to fully enjoy the rights enshrined in Article 8 of the ECHR (ECtHR, *Z v. Finland*, § 95). So far, the ECtHR has rarely been seized with issues concerning specifically the personal data of children in educational context, however, its findings in other cases concerning protection of personal data and principles established therein can be applied respectively. Due to a lack of legal capacity, children are recognised as particularly vulnerable and the State must take that into account (ECtHR, *I.V.T. v. Romania*, § 46; ECtHR, *Dupate v. Latvia*, § 61). Taking photos and filming children in various situations during their education is common practice, thus it should be emphasised that the right to protection of person's image presupposes the right to control the use of that image, and that the consent of the person concerned should be obtained at the time the picture is taken and not conditioned upon it being published (ECtHR, *Reklos and Davourlis v. Greece*, § 40). The exercise of the child's image rights is overseen by his/her parents. Taking photos of the child who did not knowingly lay himself open to such possibility, on the premises of the public institution, without parents' consent to the taking of photos or their retention by the photographer was found to be a violation of the child's ECHR Article 8 rights (Ibid., §§ 37, 41-43). The same conclusion was reached in a case concerning a TV interview of an 11-year-old girl in front of her school, in the absence of her parents, close relatives or teachers, without obtaining any prior consent, and without protecting her identity (ECtHR, *I.V.T. v. Romania*, §§ 46, 52-53, 63). Processing of personal data shall be considered as lawful interference with the child's right to respect for private life only upon satisfying certain requirements, namely if it has been carried out in accordance with the law, in pursuance of a legitimate aim, and it is necessary in a democratic society for achieving that aim (ECHR, Art. 8, para. 2). The ECtHR found there was no basis in domestic law which could legitimise the actions of the public hospital's officials who had provided journalists with personal and sensitive data of the 3-year-old child (including his name, photographs, detailed medical diagnosis), and also authorised direct access of TV crews to the child who was not accompanied by his parents nor his parents' consent was ever requested (ECtHR, *Ageyevy v. Russia*, §§ 175, 183). Video surveillance in educational institutions can be justified if it aims to prevent punishable acts (e.g., theft, destroying of the school properties, violence) (ECtHR, *López Ribalda and Others v. Spain*, §§ 118, 123). On the other hand, an automatic system of monitoring all correspondence and telephone calls by minors housed in a correctional boarding school, ruling out any kind of confidentiality, was found to be a violation of Article 8 (ECtHR, *D.L. v. Bulgaria*, §§ 100-116). Protecting the rights, freedoms, and health of others are legitimate aims capable of justifying disclosing individual's personal data (ECtHR, *Y v. Turkey*, §§ 74, 78). Thus, in a situation where, for example, the child is injured on the school premises, the teacher could disclose information about the child's infectious disease with the aim of protecting the safety of medical staff. The ECtHR dealt with the so-called sensitive data in a case concerning the child who did not attend religious education classes which resulted in the absence of a mark in his school reports in the space reserved for "religion/ethics" throughout his entire schooling, thus indirectly disclosing his convictions and amounting to a form of unwarranted stigmatisation. Namely, the freedom to manifest religious beliefs entails also a negative aspect, i.e., the right not to be required to reveal one's beliefs and not to be compelled to assume a stance from which it may be inferred whether or not one has such beliefs (ECtHR, *Grzelak v. Poland*, §§ 49, 87, 99, 101). The ECtHR's jurisprudence on access and information rights builds on its general doctrine of positive obligations that arise with the need for effective and proportionate exercise of ECHR rights (Polčák, 2020, 405). Effective procedures have to be established to enable an individual to access, within a reasonable time, to his/her personal data held by public authorities (ECtHR, *Haralambie v. Romania*, §§ 85-86, 96), including for the purposes of getting to know and understand one's childhood (ECtHR, *Gaskin v. the United Kingdom*, § 49).



Protection of children's personal data also triggers the States' positive obligations, including the duty to establish a clear legislative framework and to implement specific measures aiming at protection of private life (ECtHR, *Liebscher v. Austria*, §§ 60-61), especially in cases where the need for protection of the child's personal data is related to particularly serious acts like covert filming (ECtHR, *Söderman v. Sweden*, §§ 108-114; ECtHR, *K.U. v. Finland*, §§ 49-50). The ECtHR found that the State failed to discharge its positive obligation under Article 8 by failing to investigate the unauthorised disclosure of confidential information regarding the child's adoptive status (ECtHR, *Ageyevy v. Russia*, §§ 193-200). Rectification of data, when requested, must be carried out without undue delay (ECtHR, *Ciubotaru v. Moldova*, §§ 51, 59). The right to erasure of data is also recognised as essential for data protection of an individual, although it must be balanced against the general public's right to be informed of past events (ECtHR, *M.L. and W.W. v. Germany*, §§ 100-101). It is also worth mentioning that the ECtHR rejected as manifestly ill-founded a complaint concerning the disclosure in a press release of personal information of a child accused of assaulting a teacher. The ECtHR found that information in question had not gone beyond what is routinely provided by prosecution authorities to the media, and had not disclosed name, age or school of the child (ECtHR, *J.S. v. the United Kingdom*, §§ 71-73).

### 2.3.2. Guidelines on children's data protection in an education setting

Guidelines on children's data protection in an education setting (COE, 2021; hereinafter: Guidelines) are intended to support stakeholders (legislators and policy makers, data controllers and the industry) with the aim of ensuring respect for all the rights of the child pertaining to data protection as a result of interactions with an education setting. Recommendations included in Guidelines are given on the basis of Convention 108+ and other relevant COE instruments, echoing also some of the child's rights embedded in the CRC, in a manner which calls for adjustment to children's interests in this particular area. Due to the fact that processing of personal data of children includes various actors, both public and private, and that it may have lifelong implications for children, i.e., not just their right to data protection but a whole range of his/her human rights, it is recommended that the Guidelines be implemented during the entire data life cycle, regardless of whether the child left the education setting (COE, 2021, § 6.1.1.). Even though legal guardians are entitled to act on behalf of the child under domestic and international law, the child should also be involved in decisions that concern him/her (COE, 2021, § 4.8.) which is why it is necessary to establish procedures for children to express their own views with regard to all aspects of processing their personal data in an education setting and enable them to access remedies for violations of their rights. Also, any natural person or a legal entity should have the right to submit a complaint to the competent authority if it considers that the rights of the child as the data subject have been violated (COE, 2021, §§ 6.2.2., 6.2.3.). The assessment of the best interests of the child should strive to reconcile a child's right to protection of personal data with his/her other rights, but also take into account that legal guardians should be fairly informed of data processing, unless sharing such information would jeopardise the best interests of the child, or unless a competent child objects to the involvement of the legal guardian (COE, 2021, §§ 5.1.2., 5.3.3.). Guidelines do not mention it but it should be implied that the same rights of other children in an education setting should be a part of this balancing exercise. In an education setting, providing information fairly and effectively to the child as data subject should be interpreted as necessary to be understood by a competent child, or by their legal guardians for younger children, in accordance with the evolving capacities of the child (COE, 2021, § 7.2.1.). Children should be enabled to both give and withhold consent where they have the capacity to understand the implications and processing is in their own best interests, in line with any age-based laws in domestic and international legislation (COE, 2021, § 5.3.6.).

Thus, while not setting an age threshold themselves, Guidelines have not taken the opposite position either. It is suggested, though, that consent might not be the most appropriate basis for routine processing operations which should always be based in law. The reason for this is the power imbalance which typically exists between a public authority and an individual and as such can have a negative impact on the freedom to give or to withhold consent; when a child is a data subject, the scales tilt even more in favour of the data controller (COE, 2021, § 5.3.7.). The legal guardians' powers to act on behalf of a child as a data subject expire when the child reaches the age of maturity; at that point the data subject should be informed of any ongoing data processing about him/her to which the legal guardian gave consent, so as to be able to exercise the rights of the data subject as an adult (COE, 2021, § 7.1.6.). Objection of legal guardians or the child to data processing can affect the possibilities for delivering education in itself. In such cases educational institutions remain under obligation to enable the child to enjoy his/her right to education by offering a suitable alternative mode of education without prejudice to the child (COE, 2021, § 7.1.9.). In the COE human rights system, the right to education (Protocol No. 1 to the ECHR, Article 2) is considered to be indispensable to the furtherance of human rights in a democratic society (ECtHR, *Leyla Şahin v. Turkey*, § 137). This reflects the universally accepted view on significance of education which is considered to be essential for "enabling an individual to live with dignity" (Hodgkin, Newell, 2007, 408, 411). It is up to States to ensure that public procurement contracts are awarded to bidders that are committed to respecting children's rights, and that appropriate preventive and monitoring mechanisms are established in that regard (COE, 2021, § 6.3.3.). When educational institutions are concluding contracts with, for example, providers of e-learning tools, they may agree to certain terms and conditions of service that include processing of children's data, e.g., recording children's images and voice. However, they have to have in mind that the consent cannot be assumed by the educational institution and granted on behalf of the child (COE, 2021, § 7.7.4.). Data controllers and processors are not to give away children's personal data collected in the course of their education for others to monetise in any way (COE, 2021, § 7.1.12.). Also, profiling of children should be prohibited by law. Children's attainment and achievement should not be routinely profiled in order to assess systems, for example, for measuring school or teacher performance (COE, 2021, §§ 7.6.2., 7.6.3.). With regards to the industry, the expected safeguards for the processing of children's data in the education sector should set a high bar by design. Among other standards, Guidelines strongly advocate for children's data collected by means of educational software tools not to be processed for the purposes of behavioural advertisements and similar marketing purposes (COE, 2021, §§ 8.1.1., 8.3.7.). After the child leaves education, educational institutions should retain only the necessary minimum of the child's identifying data. As an example of good practices, Guidelines recommend that upon leaving an educational institution the child should receive a full copy of their record, including information about personal data (which data continue to be retained, which data are erased, by whom, for what purposes) (COE, 2021, §§ 7.4.1.-7.4.4.).

### **3. PROTECTION OF THE CHILD'S PERSONAL DATA IN THE CROATIAN EDUCATION SETTING**

Croatia has not adopted special regulations on the protection of children's personal data, therefore general regulations on the protection of personal data are applied at all levels of the education system. The right to the protection of personal data has been a constitutional category in Croatian legal system since 1990. In addition to the right to respect for private and family life enshrined in Article 35 of the Constitution (1990), security and confidentiality of personal data is guaranteed to every natural person under Article 37 which also embodies the principle of lawfulness, stating that without consent of the data subject, personal data can be processed only under the conditions specified by law.

As Croatia is an EU Member State, GDPR also applies to children. Croatia adopted Act on the Implementation of General Data Protection Regulation (2018; hereinafter: Implementation Act) but it does not provide for anything different with regards to children. Instead, it only specifies that the requirement regarding consent for children over 16 years of age applies to children residing in Croatia. Parental responsibilities include the parents' duty to take care of the child's rights and his/her well-being in accordance with the child's developmental needs and capabilities as well as the duty to take care of their child's comprehensive, regular and, according to their possibilities, further education and encourage his artistic, technical, sports and other interests (Family Act, 2015, Arts. 91 and 94). The Primary and Secondary School Education Act (2008) does not include specific provisions on protection of children's personal data. In rather general terms it stipulates that the school curriculum and the annual plan and program are published on the school's website in accordance with general rules in this legal area (Art. 28, para. 11). The same applies to the protection of data from the e-Register (a centralised system of the Ministry of Education and Science for the entry of the most important information on students and school staff) against misuse, destruction, loss, unauthorised access (Art. 140). One of the aims of upbringing and education in school institutions is to train pupils for life and work in a changing socio-cultural context according to the requirements of the modern information and communication technologies and scientific knowledge and achievements (Art. 4 para. 1(4)), which should be understood as including teaching pupils about the meaning and significance of their right to protection of personal data in all situations related to their education setting. Research shows that 34% of children in Croatia use the internet for schoolwork on a daily basis. In addition to 51% of the children who talk with their parents often or very often about the use of internet, for 78% of children teachers are often sources of such advice, while 57% of children say teachers help them when something bothers them on the internet (Smahel et al., 2020, 32, 106-107, 109-110). Undoubtedly, this contributes to the importance of the issue of protecting children's data in an education setting. Croatian Personal Data Protection Agency (hereinafter: Agency), the supervisory authority responsible for monitoring the application of the GDPR (Implementation Act, Article 4(1)), provides the interested legal and natural persons with advice and guidance on how to apply data protection rules within the education system, some of which are also available on the Agency's website. For example, the Agency explained that if the parent requests the exercise of the right to preferential enrolment of the child in kindergarten (e.g. a child from a family with three or more minor children), or a payment relief, he/she is obliged to submit to the kindergarten certain documentation which proves that the conditions for obtaining this privilege have been met. The kindergarten is obliged to delimit which personal data and information are collected based on their legal obligation, i.e. which personal data are mandatory and which are optional (depending on whether some additional rights/benefits are requested). The same applies to schools. One of the most interesting questions addressed to the Agency, and one of the most important, concerns the access to information stored in a special web application called 'e-Register for pupils and parents' (hereinafter: e-Register) which enables pupils to see their grades, absences, notes, pedagogical measures, planned written exams schedule and personal information entered by teachers in the e-Register Book (web application intended for keeping a class register in electronic form). Concerns have been raised with regard to the fact that the child's legal guardians can access all the information stored in the e-Register without the child's consent. According to the Agency's opinion, this right does not depend on the child's age (Agency, 2019a). The Agency bases this opinion on the fact that it is both the right and the duty of a legal guardian to care about his/her child in accordance with the relevant provisions of the Family Act. Namely, Article 290 of the Family Act obliges parents to pay alimony for their child who is over the age of majority if the child attends secondary school or until he/she finishes higher education, provided that the child duly fulfils his/her duties, but no longer than the age of 26.

Such a parent has the right to request and receive information about the child's education from the child himself/herself, competent authorities and legal entities. This opinion of the Agency seems rather simplistic as it does not take into account the fact that the Family Act also stipulates, in Article 117, that the child acquires full legal capacity upon reaching the age of majority - 18 years of age - and that parental responsibilities are terminated at that moment. In other words, the child legally becomes an adult and parents *ex lege* lose the status of their child's legal representative. Wide interpretation of Article 290 can be a legal basis of the parents' right to access e-Register, however, it raises the issue of the proportionality at the very least. Legal guardian has access to all the information about the child stored in e-Register, while the wording of Article 290 is narrower and speaks about the child's 'regular fulfilment of educational obligations' and about the legal guardian's right to 'request and receive' information, not to 'take it', i.e., to access it on its own. It seems that there is no particular public concern about this opinion of the Agency, probably due to the fact that high school pupils, even if they are of legal age, mostly live with parents who continue to support them and on whom they are completely financially dependent. Nevertheless, disputes may arise and it would be desirable to regulate this issue more concretely. This is all the more so since the Agency was very clear on the issue of signing the consent – where the pupil is 18 years of age, he/she signs the consent personally, otherwise, the legal guardian signs the consent for processing the child's personal data (Agency, 2019b). Ultimately, the requirements of Article 12 of the CRC are disregarded in this situation as the pupils are not given the opportunity to express their views on the matter even after they reach the age of 18, let alone before. The work of the Croatian Ombudsman for Children since the entry into force of the GDPR in 2018 reveals that the number of complaints with regard to violation of the child's right to privacy fluctuates. In 2017, 65 such complaints were submitted. In 2018 and 2019, 72 and 76 complaints were submitted, respectively. The drop to 66 complaints in 2020 could be explained by Covid-19 pandemic. Then follows a significant jump with 83 applications in 2021, and then a noticeable drop to 45 applications in 2022. What is constant during this period is the fact that the largest number of complaints refer to the media because, among other reasons, media coverage of cases of violence at school is continuously sensationalistic in nature, regularly including details about the child's private life (Ombudsman, 2020, 47; Ombudsman, 2023, 44-45). However, throughout this period media is immediately followed by institutions, namely schools and kindergartens, as violators of the child's privacy. There is inadequate and worrying practice of certain institutions that have the responsibility and authority to take measures to protect children's rights, including social welfare centres, educational institutions, even police departments, in the sense that they do not report violations of children's privacy (in the media, on social networks, etc.) to the competent authorities, but limit themselves to addressing the Ombudsman for children (Ombudsman, 2022, 15). Also, it has been observed that some schools and educational workers do not consider it their responsibility to report cases of violations of children's rights in the digital environment of which they have knowledge, nor to take pedagogical or other professional measures to help the children; sometimes, also, they do not recognise the seriousness of those violations (Ombudsman, 2022, 43, 163; Ombudsman, 2019, 38). On the other hand, in some cases, institutions turn to the Ombudsman for Children in order to protect the rights and interests of an individual child, but they only state the child's initials because they believe that this is how they protect the child (Ombudsman, 2022, 15). This shows a serious misunderstanding not only of the functioning of the protection of the child's personal data, but also of the protection of the child's rights in general, precisely on the part of those who should have more knowledge about this issue than the average person. At the pre-school level, there were complaints about situations such as, for example, publication of photos of kindergarten children on websites and social networks by an advertising agency, without parental consent (Ombudsman, 2020, 16). The media reported on the kindergarten where members of the foreign teacher's foundation

came to visits, observed the children in their activities and left monetary donations. Also, it was discovered that children were photographed and their photos were published on the websites of the foundation and a travel agency which organised the teachers' visits (Ombudsman, 2020, 61). At the request of the mother who refused to submit the child's relevant medical documentation to the kindergarten's expert service which believed that the child had difficulties and should have been included in the early intervention program, the Agency expressed the opinion that the parent is not obliged to submit such information to the expert service of the educational institution. On the other hand, the Ombudsman for Children expressed the opinion that such an attitude of the Agency is not in the interest of the child, because without relevant documentation the institution cannot adapt its actions to the specific needs of the child (Ombudsman, 2021, 39). Complaints have often been submitted because educational institutions publish photos and information about children on their websites or social networks, without informing the parents or asking for their consent (Ombudsman, 2022, 17), including publication of lists of children enrolled in kindergarten, lists of pupils in schools (Ombudsman, 2020, 15-16), results of the first grade entrance test that contained the names and results of individual children (Ombudsman, 2021, 17). Some schools acted inappropriately in relation to the excessive collection of data on the family status of parents who were enrolling their children in the first grade, requesting that they specify, *inter alia*, whether they were biological parents, adoptive parents, stepparents or foster parents (Ombudsman, 2022, 18; Ombudsman, 2021, 16). Unfortunately, cases of public shaming of children in Croatian education setting are not rare, as evidenced by, for example, the case of a pupils' dorm that published information about the pedagogical measures imposed on pupils on the bulletin board, thus making the personal data of children available to a wide circle of people (Ombudsman, 2022, 65-66). Inappropriate behaviour of educational staff is also a source of concern, such as the teacher's passing on the information about the parents' debt for school meals to the children, in the presence of other pupils, thus violating their right to privacy and dignity (Ombudsman, 2021, 120-121). Certain practices during the Covid-19 pandemic were questioned, including the collection of data on the pupils' chosen paediatricians. Given that the purpose was to ensure compliance with epidemiological measures, the Agency issued an opinion that it was a matter of processing necessary personal data because schools needed to perform tasks of public interest (Ombudsman, 2021, 17-18; Ombudsman, 2022, 18). Most recently, considerable number of complaints regarding the violation of privacy and the protection of personal data of children in educational institutions have been related to the disclosure of information about the child by parents of other children at parent-teacher meetings at school, unauthorised recording of lessons by students using mobile phones, and questioning children in front of other pupils in the class about their illnesses and doctor's appointments (Ombudsman, 2023, 19). A serious situation which brought into question not only the child's right to protection of personal data but also the right to education itself was reported in relation to the private elementary school which posted photos and videos of children on Instagram, the school's Facebook page and the Toddler app, although parents were not informed about it or gave their consent. After the parents complained, the owner of the school informed them that they were obliged to sign the consent because it is a condition for attending the school, or otherwise they can enrol their children in another school (Ombudsman, 2022, 18). The freedom of establishment of private schools is guaranteed in international (e.g., EU Charter, Art. 14, para. 3) and national law (e.g. Constitution, Art. 67), it is always limited by respect for democratic principles and is exercised in accordance with the arrangements defined by national legislation. However, as the state remains responsible for ensuring that private schools respect those principles and legislation and follow the basic patterns of public education (Gori, 429, 441), this kind of behaviour should be followed by significantly more serious reactions from the competent state bodies than the warnings of the Ombudsman for Children.

#### 4. CONCLUSION

Educational institutions store significant amount of children's personal data. It is not something new, but calls for careful consideration of mechanisms of protection, especially since the digital technologies entered in educational context and exposed children's data to high risks of misuse. It is often contended that pupils' rights to freedoms of certain kinds are justifiably overridden since in the long run the education they receive will be essential to them as persons (Davis, 2001, 248). However, it should never be overlooked that privacy is also vital to children's agency, dignity and safety (CRC Committee, 2021, § 67). Due to spatial constraints, this paper focused only on main European documents and national regulations concerning the protection of children's personal data in educational context, however, the analysis of the implementation of the standards contained therein carried out from the perspective of the Croatian education system resulted in dissatisfactory conclusions. Article 12 of the CRC provides for the right of children to have the opportunity to express their views in all matters affecting them at school. School is the main point of social contact for a child beyond the family which is why it is particularly important that children are able to exercise that right in their educational environment (Parkes, 2013, 132). Unfortunately, in the Croatian education system the issue of the child's consent to the processing of his/her personal data is not regulated and implemented in accordance with Article 12 (nor with Article 86 of the Family Act providing for the same right). Moreover, not even the pupils who turned 18 years of age are given voice with regards the fact that their parents, who are not their legal guardians any more, have access to all the information about them stored in the e-Register. This is definitely one of the issues that need to be addressed *de lege ferenda* by the legislator. Further, given that violations of children's personal data often occur in the form of publishing information about activities involving children by educational institutions on their websites and social networks, those institutions should consider adopting codes of conduct with rules on such forms of processing children's data on the institutional level as well as rules on their staff behaviour with regard to online posts about children and online forms of communication with parents, children, etc., which have been commonly used (e.g., *via* WhatsApp, Viber). Data protection impact assessments (GDPR, Art. 35) should not be a one-time thing but a regular practice. Also, the provision of a school complaints mechanism should be considered as one method through which children may have the opportunity to voice their views in accordance with Article 12 of the CRC (Parkes, 2013, 136). The most worrying finding of this research is, as shown *supra*, that after five years of the GDPR application in Croatia different stakeholders related to the educational setting display serious misunderstanding of the basic rules of personal data protection. We have seen that it is precisely the bodies and persons who are obliged to protect children's rights that sometimes do not accept that protection of children in connection with their online activities is also their duty. It must by no means be forgotten that the best interests principle applies not only to all actions concerning children, but also to the failures to act (Freeman, 2007, 45). We have also seen that educational staff seriously violates children's rights pertaining to protection of their personal data. This suggests there is still a lack of awareness of the way protection of children's rights in general works on the part of those who are expected to know more than the average person about the importance of children's rights and about the children's vulnerability. One of the elements of the best interests principle is the suitability of staff in all institutions and facilities responsible for the care and protection of children (Freeman, 2007, 72). Similar to parents, teachers should show children by example what it means to respect the right of others to protect their personal data. In order to achieve this, educational staff (as well as other stakeholders involved in educational context) should be appropriately trained about the substance, scope and ways of protecting children's personal data. Consequently, it seems that *de lege ferenda* proposal with the most potential for success is to invest even more effort in education and raising the level of awareness about the importance of respecting the child's right to protection

of personal data. Namely, when it comes to violations of this child's right, especially those occurring in the digital environment, time is of the essence for effective protection. Reality is that once a child's image or any other personal data is published online, it remains out there forever. In other words, while protection through appropriate procedures has to be provided, it will not always be provided in due time. That is why putting effort in the prevention of violations is so important.

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## GROWING MULTINATIONALS - TALES OF TWO MAJOR GROUPS

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### ABSTRACT

*The paper focuses on international expansion. Through a careful analysis of the literature, we describe the main motivations that drive companies to become multinationals, as well as the main challenges they face. The growth strategies that can be followed are also described, with particular emphasis on mergers and acquisitions, providing an overview of the methods and objectives used from 1960 to the present day. The paper then describes the main operations carried out in the international expansion of two major groups, EssilorLuxottica and Stellantis, and analyses the economic and financial performance achieved as a result. We identify a series of indicators and divide them into four perspectives (profitability, turnover, financial and productivity). We apply these indicators to the consolidated financial statements of the two groups from 2013 to 2022 in order to analyse in detail the results of the main management area.*

**Keywords:** *Multinationals, International expansion, Growth strategies, Mergers and Acquisitions (M&A), Economic and financial performance, EssilorLuxottica, Stellantis*

### 1. MOTIVATIONS AND LIMITS TO INTERNATIONAL EXPANSION

The fascinating journey of international expansion takes companies through a complex maze of promising opportunities and stimulating challenges. This intricate path defines a global landscape that requires careful and forward-looking navigation. The willingness to embark on this global journey is fuelled by a complex mix of benefits and challenges that add depth and understanding to this expansion towards the global horizon. Opening new doors to unknown geographical horizons is an irresistible invitation to innovation and growth. The benefits of this strategy cover a wide range of fascinating topics, each contributing to the overall picture (Burger et al., 2023; Grant, 2020; Hossain, 2021; Lee, 2017; Schiffbauer, Siedschlag and Ruane, 2017; Xu, 2017):

- 1) Access to new markets: International expansion is the key to untapped territories, enabling companies to build bridges to new consumers and audiences. This translates into opportunities to increase sales and diversify revenue streams, providing a solid base for further expansion.
- 2) Leverage economies of scale: Global reach enables the exploitation of valuable economies of scale. Synergies in sourcing, production and distribution are revealed as hidden treasures, increasing efficiency and improving business competitiveness.
- 3) Risk diversification: Geographical breadth helps guard against uncertainty. While local crises can shake a market, international expansion offsets these effects through positive performance in other regions, protecting the company from over-concentrated risks.
- 4) Global learning: In an increasingly interconnected world, operating internationally is an inviting window to learning. By absorbing a wide range of knowledge and cultural skills, companies can excel in the art of innovation, improve operational practices and conquer new sectors.

- 5) Access to unique resources and skills: Crossing national borders makes it possible to discover hidden treasures of natural, technological and human resources. Enriching these resources can enable the development of unique solutions, optimise operations and accelerate innovation.

However, this compelling path is not without its complex challenges; indeed, it requires prudence and vigilance. The challenges of international expansion expose companies to the unknown, requiring astute navigation and constant adaptability (Boldizzoni and Nocamulli, 2017; Bonaimé, Gulen and Ion, 2018; Renneboog and Vansteenkiste, 2019). The challenges are as follows:

- 1) Cultural and linguistic complexity: Interaction in different cultural contexts imposes a duty to understand, appreciate and respect cultural nuances. Failure to do so can lead to misunderstandings, erode relationships and undermine corporate reputation.
- 2) Regulatory and legal variations: Unique local regulations are a complex maze that must be carefully navigated. Compliance and enforcement in each country becomes a priority, requiring sound legal planning to avoid risky ventures.
- 3) Currency fluctuations and financial risks: Currency fluctuations can ebb and flow like a stormy sea, affecting a company's financial health. Managing currency fluctuations and mitigating financial risks become critical strategies to avoid unexpected stranded assets.
- 4) Global competition: The global stage is a competitive arena populated by fierce opponents. Companies need to adopt distinctive positioning strategies and face stiff competition from established local and international companies.
- 5) Logistics and distribution complexity: Managing production, distribution and supply operations on a global scale requires careful logistics. Coordinating synchronised movements requires sound planning and a reliable distribution infrastructure.
- 6) Political and economic risk: The international horizon is often crossed by political storms and economic downturns. Political crises, changes in trade policy and economic turbulence can disrupt business plans and require agile navigation in choppy waters.

Growth, in all its various facets, is one of the key pillars of business success and prosperity in today's dynamic and evolving global economic landscape. Our exploratory research begins in the next section with an examination of the different types of growth strategies that constitute the true arteries of corporate pathways. We will focus on the plethora of strategic choices available to companies, and outline the fertile ground on which the challenges and opportunities associated with organisational growth unfold. Each path represents a mosaic of considerations, an intricate blend of strategic vision, organisational resources and context, and each has the goal of becoming a *multinational*, that is, a company with operations in at least one country other than its home country (Teece, 1981). According to some definitions, it also generates at least 25% of its revenues outside its home country. Typically, a multinational company has offices, factories or other facilities in different countries around the world, as well as a centralised headquarters that co-ordinates global management. Simply exporting goods for sale abroad does not make a company a multinational, but it can be an important first step (Rugman and Verbeke, 2004). The analysis continues in section 3, which describes the internationalisation path of two large groups, EssilorLuxottica and Stellantis. The performance of these groups is analysed by comparing selected indicators over the period from 2013 to 2022. Section 4 concludes the analysis.

## 2. THE GROWTH STRATEGIES OF MULTINATIONAL COMPANIES

In this section, we will focus on the key dynamics and choices that characterise each growth strategy. In a thoughtful and documented manner, we will explore the mechanisms that drive

the decision-making process and the synergies that are created in the implementation of such strategies. We will explain how the thoughtful and deliberate adoption of a given strategy can act as a lever to achieve business expansion and success goals. The result of this examination is a clear and diverse set of options from which companies can choose to meet the challenges of the globalised economy. The different pathways outlined here lead to expansion and growth, skilfully combining internal resources, external opportunities and market dynamics (Grant, 2020). Expanding beyond national borders is thus a complex way for companies to acquire, maintain, develop and strengthen their competitive advantage. However, it is undeniable that such business expansion is closely linked to the adoption of strategies that can lead to such advantage (Yip, 2002). These strategies, with their exceptional scope, both in terms of frequency and impact on the organisation, outline a landscape of financial, administrative and fiscal decisions guided by the logic of comparative economic efficiency (Johansson and Vahlne, 1990). They pursue development objectives such as increasing operating profitability and gaining market share, or rationalising direct costs, commercial structures and administrative procedures. In this way, these operations make it possible to plan the tax burden more accurately, thereby contributing to the prudent management of the company. Mergers and acquisitions (M&A) are a relatively recent phenomenon, closely linked to the development of organised financial markets (Hossain, 2021). These latter transactions, characterised by cyclical trends known as *merger waves*, are now an essential part of the evolving economic environment. First of all, an important distinction emerges between two modes of corporate growth: the first is intrinsic to the organisation itself and implies the development of new activities based on the skills, competences and financial, technological and managerial resources already possessed (Grant, 2020). The second modality, on the other hand, is embodied in external expansion, which takes the form of various nuances (Yip, 2002; Johansson and Vahlne, 1990) as:

- Strategic alliances: In this context, two or more companies join forces to share a strategic perspective, opening the door to deep and focused collaboration (Ferrigno, 2020; Bresciani, 2010; Tjemkes, Vos and Burgers, 2018).
- Joint ventures: A further step is taken through the formalisation of alliances, leading to the creation of legally and sometimes managerially and organisationally autonomous entities (Cui, 2011; Tupponi, 2012).
- Mergers and Acquisitions (M&A): External expansion reaches its maximum expression through operations that allow the company to take full and direct control of the economic combinations it acquires. Mergers and acquisitions (M&A) are important tools in corporate strategy and are the main means by which companies can rapidly and significantly expand their operations and increase the scope and variety of their activities (Caiazza and Volpe, 2015; Cartwright and Schoenberg, 2006; Cumming et al., 2023; Kumar and Bansal, 2008; Mulherin, Netter and Poulsen, 2017; Golubov, Petmezas and Travlos, 2013; Zollo and Meier, 2012). Many of the world's most influential companies have emerged from complex M&A processes and have achieved remarkable growth. Comcast, for example, rose to the top of the US media industry through a series of acquisitions in the 1990s and early 2000s. Luxottica has become a world leader in eyewear through shrewd M&A in the optical industry, combining the forces of major global players.

However, it is important to remember that the dynamics of mergers and acquisitions can also lead to negative outcomes (Alexandridis, Antypas and Travlos, 2017). For example, the merger between Daimler Benz and Chrysler between 1998 and 2007, under Daimler's management, resulted in a monetary loss of approximately USD 48 billion, a clear case of an unfortunate outcome.

The idea of a takeover occurs when one company acquires another, resulting in a proposal to purchase the target company's shares. This process can be friendly if it meets with the approval of the target company's board, or unfriendly if it meets with the hostility of the same board (Gaughan, 2007). A merger, on the other hand, is characterised by the joining of two companies to form a new entity, which requires the approval of the shareholders of each company, who exchange their shares for shares in the new entity. Mergers usually involve companies of similar size, with one of the parties usually playing a leading role. Although mergers are less common than acquisitions, they are often preferred because of the tax advantages they offer and the possibility of avoiding the takeover premium paid by the dominant party. In the context of international transactions, mergers may be less politically controversial than takeovers, as they avoid problems of foreign influence (Sherman and Hart, 2006). Over the years, the terms 'mergers' and 'acquisitions' have effectively merged in the context of M&A activity, becoming a generic reference to any such transaction (Reis et al., 2015). The origins of this phenomenon can be traced back to the late 19th century in the United States (Mulherin, Netter and Poulsen, 2017). In order to avoid direct rivalry, some companies gave control of their businesses to a board of directors with responsibility for setting pricing and marketing policies for the entire business. Prominent figures such as John D. Rockefeller, a partner in Standard Oil, were at the forefront of this practice. In 1899, thanks to the Sherman Antitrust Act of 1890, holding companies became the primary vehicle for consolidating various industries. As a result, Standard Oil of New Jersey gained share control of up to 40 companies affiliated to the Standard Oil Trust. Since the nineteenth century, mergers and acquisitions have increased steadily and have become a feature of global development. The methods and objectives of mergers and acquisitions have evolved over time, and today it is possible to mention the many different forms they take. In the 1960s and 1970s, the majority of M&A transactions focused on diversification, often led by conglomerates (Gregoriou and Renneboog, 2007). In the late 1990s and early 2000s, almost half of all M&A transactions involved companies active in the technology, media and telecommunications sectors. Between 2000 and 2008, the dynamism of the financial services and natural resources sectors led to a surge in M&A activity. Following the 2008 financial crisis, horizontal mergers became dominant, contributing to the consolidation of sectors such as chemicals, beer, food, media, communications and pharmaceuticals. The use of M&A strategies has proved crucial to the development of leading companies in a wide range of industries. A striking example of this effectiveness can be seen in the achievements of Anheuser-Busch InBev and Essilor-Luxottica, two giants that have risen to the top of their respective markets through strategic and innovative M&A activity. It is also worth noting how acquisitions have led to profound changes in the way some companies do business. A notable case is that of Nokia, which underwent a radical redefinition by selling its mobile phone divisions to Microsoft, transforming itself from a manufacturer of mobile devices to a reference point in network infrastructure. M&A activity was also strong in Asia. The Chinese car manufacturer Geely attracted global attention with the acquisition of prestigious brands such as Volvo, Proton-Lotus and Manganese Bronze. This strategic move has propelled Geely onto the international stage and given it a prominent position in the global automotive industry. Looking at the decade between 2010 and 2020, significant trends in M&A activity emerge (see Figure 1). With the exception of the two-year period 2012-2013, which was marked by the sovereign debt crisis, the other periods show significant increases both in terms of the total value of transactions and the number of deals concluded. From a geographical perspective, the United States continues to dominate the M&A market, followed by Europe and Asia, albeit at some distance. However, the rise of the East is a notable phenomenon: between 2010 and 2020, the value of M&A in this region will more than double, catching up with Europe and even surpassing it in the relevant years of 2015, 2016 and 2020.

Looking at the M&A picture in recent years, an analysis of the figures for 2021 and 2022 reveals a dynamic and evolving environment. After the decline seen in 2019-2020, 2021 is a record year, with a total deal value of USD 4,418 billion and as many as 48,948 transactions completed worldwide. This represents a significant increase of +47% in value and +31% in volume compared to the previous year. A confluence of factors fuelled this growth, including the economic recovery, controlled inflation and low interest rates. Transnational deals proved to be particularly influential in 2021, accounting for 46% of total deal value and 35% of total global deals after COVID-19 mitigation. Geographically, the US maintained its dominance of the M&A market with 55% of deals, while Europe came in second with 23%, driven by increased activity in the private equity sector. Two leading sectors stood out: Retail & Consumer and TMT. Despite the euphoria of 2021, 2022 brought complex challenges. Major central banks initiated policies to raise interest rates in response to rising inflation, which reached 8.5% in the US in March 2022, the highest level since 1981.

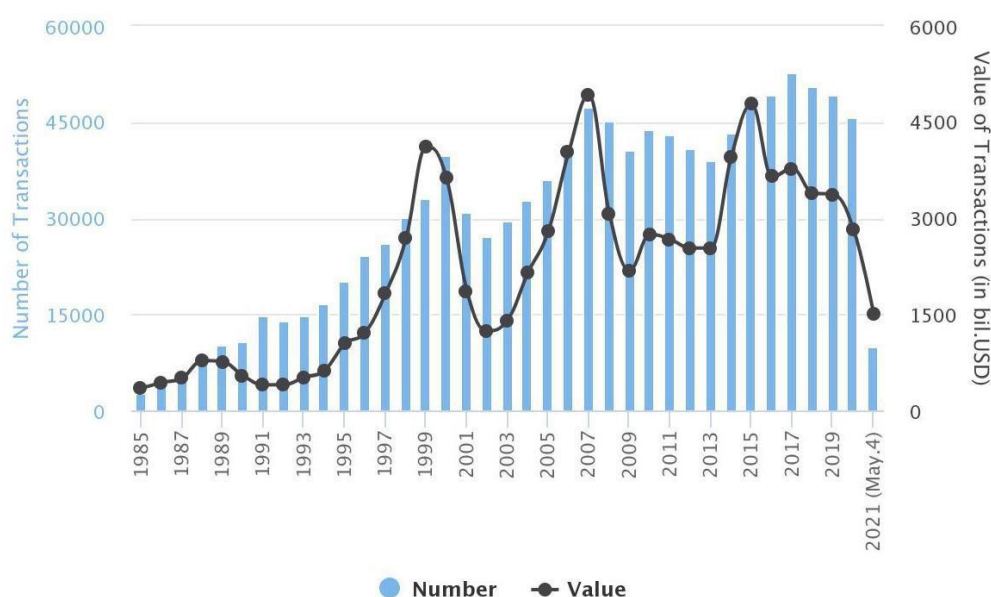


Figure 1: Mergers & Acquisitions Worldwide

(Source: Institute for Mergers, Acquisitions and Alliances, <https://imaa-institute.org>)

Geopolitical imbalances and energy shortages led to a bearish revision of the global economic outlook, with a direct impact on major economies. This uncertainty impacted the M&A market, with the number of so-called 'megadeals' falling by 40% between the second half of 2021 and the first half of 2022, while total deal value fell by 20%. This class of transactions, while highly attractive, carries inherent risks due to the complex operational and organisational dynamics involved. Despite the attractiveness of this type of transaction, there are risks inherent in the complex operational and organisational dynamics involved. Despite the many successes that have characterised the M&A landscape, it is worth remembering that there have been just as many failures, underlining the sensitivity and uncertainty of such a path.

### 3. THE PATH FOLLOWED BY ESSILORLUXOTTICA AND STELLANTIS

The most significant financial events of recent years have undoubtedly been the merger between Luxottica and Essilor, which gave rise to the current corporate structure with the creation of the EssilorLuxottica Group (<https://www.essilorluxottica.com>), and the merger between the FCA Group and the PSA Group, which created a major global player in the automotive sector called Stellantis (<https://www.stellantis.com>).

The aim of this section is to describe the main operations and the path taken by these two groups for their growth and international expansion, and then to analyse the economic and financial performance achieved as a result. To this end, we have identified a series of indicators from the literature (Wahlen, Baginski and Bradshaw, 2015; Foster, 1986; Fraser and Ormiston, 2023; Friedlob and Schleifer, 2003; Penman, 2013) and applied them to the consolidated financial statements of both groups for the period from 2013 to 2022. The consolidated data are available in the Orbis database (Bureau Van Dijk). The indicators have been divided into four perspectives in order to analyse in detail the main areas of group management:

- Profitability ratios: ROE, return on equity, calculated as the ratio of operating profit before tax to shareholders' equity; ROCE, return on capital employed, calculated as the ratio of operating profit to the sum of financial debt and shareholders' equity; ROA, return on assets, calculated as the ratio of operating profit before tax to total invested capital; the EBITDA margin, calculated by comparing earnings before interest, taxes, depreciation and amortisation (EBITDA) with the total value of production; the EBIT margin, calculated by comparing earnings before interest and taxes (EBIT) with the total value of production; and the Enterprise Value (EV) to EBITDA index.
- Sales ratios: capital turnover, calculated as the ratio of total production value to the sum of equity and financial debt, and inventory turnover, calculated by comparing total production value with total inventories.
- Financial ratios: the liquidity ratio, defined as the ratio of current assets to current liabilities; the quick ratio, similar to the previous one except that the numerator is current assets less inventories; the solvency ratio, calculated as the ratio of shareholders' equity to total invested capital; the leverage ratio, given by the sum of financial debt and non-current liabilities to shareholders' equity.
- Productivity ratios: revenue per capita, calculated as the ratio of profit or loss after tax to the number of employees; and investment per employee, calculated as the ratio of invested capital to the number of employees.

### **3.1. EssilorLuxottica**

Luxottica is an Italian company specialising in the production and marketing of eyewear. The company was founded in 1961 in Agordo, in the province of Belluno, by Leonardo Del Vecchio under the name "Luxottica di Del Vecchio e C. S.a.S". Initially, Luxottica concentrated on the production of small metal parts and semi-finished products for third parties. Later, the company expanded its activities to include the production of complete eyewear. This change marked the beginning of a remarkable success, thanks to the innovative style of the frames presented at the first edition of MIDO, the International Exhibition of Eyewear in Milan. In 1969, Luxottica took an epochal step when it decided to switch from subcontracting to in-house production, launching the first frames under the Luxottica brand. Convinced of the need for deep vertical integration, in 1974 Del Vecchio bought the Italian distributor Scarrone in order to be able to distribute the frames directly in the target market. In 1981, Luxottica opened its first international subsidiary in Germany, marking the beginning of a period of rapid global expansion, involving the acquisition of foreign distributors and the creation of important strategic joint ventures. During the same period, Luxottica continued to invest in improving and adapting its products to the highest standards. These investments enabled the company to increase its market share both in Italy and in the main European markets. In 1988, Luxottica signed the first of many licensing agreements with designers, starting with Armani. The company was listed on the New York Stock Exchange in 1990 and on the Milan Stock Exchange in December 2000. This listing allowed Luxottica to raise funds, which it used to acquire other brands. Brands such as Vogue, Persol and US Shoe Corporation were acquired in 1995, Ray-Ban in 1999 and Sunglass Hut Inc in 2001.



Luxottica then expanded its retail presence with the acquisition of Sydney-based OPSM in 2003, Pearle Vision and Cole National in 2004. From 2007 and over the next five years, the company continued to grow through a series of M&A deals (see Table 1). All of these acquisitions made by the company during this period followed an internationalisation strategy, with most of the target companies positioned outside Italy and even the European Union. Luxottica acquired Oakley in the US, Tecnol in Brazil, High Tech and Stanza in Mexico and Multiópticas Internacional in South America. This strategy showed not only a desire to expand geographically, entering new markets or strengthening its presence in those where it was already present, but also to differentiate its activities. In fact, Luxottica with the acquisition of the different target companies also managed to enter the retail sector, which represented a new source of growth for the group. This laid the groundwork for the big deal with French brand Essilor.

<b>Target</b>	<b>Country</b>	<b>Year</b>	<b>Share</b>
Oakeley	USA	2007	100%
Multiópticas Internacional	South America	2009	40%+60%
High Tech + Stanza	Mexico	2011	100%
Tecnol	Brazil	2011	100%
Alain Mikli	France	2012	100%
Salmoiraghi&Viganò	Italy	2012	35%
Sun Planet	Spain/Portugal	2012	100%

*Table 1: Luxottica acquisitions in the period 2007-2012  
(Source: Luxottica Spa)*

The effectiveness of Luxottica's operations was confirmed in March 2013 by Standard & Poor's rating agency, which upgraded its outlook from "stable" to "positive" (BBB+). This positive rating was the result of two consecutive years (2011 and 2012) of solid operating performance by the company. During these years, Luxottica recorded double-digit growth in sales volumes, revenues and profits. The BBB+ rating reflects both the solidity of Luxottica's business, which is positioned at the forefront of the eyewear industry, a sector characterised by rapid and constant development, and Luxottica's financial strength, as evidenced by the record of over 700 million euros achieved in 2012. Thanks to these factors, Luxottica has become a colossus in the sector, competing with major players worldwide. Subsequently, the company's growth was further strengthened by its merger with another industry giant, Essilor, in 2018. The merger was announced on 16 January 2017 following the signing of the merger agreement and the contribution agreement. The first agreement defined the terms of the merger and stipulated that no third party, either individually or as part of a group, could hold more than 20% of the share capital. The second agreement provided for the transfer to Essilor of all Luxottica shares held by Delfin, the holding company owned by Leonardo Del Vecchio, through a public exchange offer. At the same time, the French company issued new shares with a value of EUR 0.4613 each through a tender offer. Following the announcement in January 2017 and the receipt of the necessary approvals from the antitrust authorities in the United States, the European Union, Brazil, Canada and China, the merger between Essilor and Luxottica was effectively completed on 1 October 2018. The transaction was completed through the contribution to Essilor of Delfin S.a.r.l., the holding company of Leonardo Del Vecchio, Luxottica's former majority shareholder, which held 63.3% of the Italian company. This also led to a change in the company's name to EssilorLuxottica. With its 38.4% stake, Delfin became the main shareholder of the new French group. The other Luxottica shareholders also received 0.461 EssilorLuxottica shares for each Italian share held through a public exchange offer.

With all shareholders participating in the exchange offer, Delfin's stake fell to 31.4%, while Essilor employees held 4.1% of EssilorLuxottica, making EssilorLuxottica the sole shareholder of Luxottica S.p.A. The free float increased to 64.5%. 1 October 2018 is marked by the merger, which created a true colossus with a turnover of EUR 16 billion and a market capitalisation of EUR 57 billion. However, the merger was not without its problems. A few months later, on 20 March 2019, a clash broke out between Leonardo Del Vecchio and vice-president Hubert Sagnières. In an interview with *Le Figaro*, the Italian businessman accused his French partner of not respecting the agreements that provided for equal power in management, especially after Sagnières had hired four key executives without any consultation, giving the French partner unilateral control over the new company. Sagnières responded that Del Vecchio's accusations were unfounded and accused the Italian businessman of trying to take control of the company without offering a premium to the other shareholders. A week later, on 25 March, Delfin (Del Vecchio's family holding company) filed a request for arbitration with the International Chamber of Commerce to verify breaches of the 2017 Combination Agreement'. In order to resolve these conflicts, a change of management took place on 18 December: Leonardo Del Vecchio and Hubert Sagnières stepped down from all operational positions. Del Vecchio remained non-executive Chairman, while Sagnières retired but retained his position as non-executive Vice Chairman. All powers were transferred to Francesco Milleri, Del Vecchio's choice as CEO, and Paul du Saillant as Deputy CEO, until the 2021 AGM. Despite the internal disagreements, EssilorLuxottica remains a world leader in the design, distribution and sale of lenses, frames and spectacles. The holding company currently has a turnover of 16 billion euros, a market capitalisation of 45 billion euros and employs around 150,000 people. Its retail network is present in 150 countries worldwide, with approximately 10,000 stores. The company's best-known eyewear brands include Oakley, Persol, Ray-Ban, Oliver Peoples and Vogue Eyewear, as well as a number of major licensed brands including Bulgari, Versace, Chanel, Armani, Burberry and Prada. In lenses, EssilorLuxottica owns most of the major brands, such as Varilux, Transitions, Eyezen, Crizal and Costa, and has partnerships with Nikon and Canon.

### *3.1.1. The economic and financial performance of EssilorLuxottica*

The company's history, as shown in the previous section, has been characterised by frequent recourse to M&A operations, especially in the period 2007-2012, operations that have enabled the group to achieve important international growth objectives. The following tables show the main indicators calculated on the basis of the consolidated financial statement data of EssilorLuxottica N.V. (the global reference shareholder of the group) from 2013 to 2022. As anticipated, these data are available in the Orbis database (Bureau Van Dijk) and the aim of this analysis is to verify the impact of the Essilor-Luxottica merger on the company's economic and financial performance. The analysis of profitability ratios (see Table 2) highlights a first interesting element: on average, the best results were recorded in 2017, the year in which the merger between Luxottica and Essilor was announced. Subsequently, there is a decline in the main economic indicators, particularly in the years marked by the Covid 19 pandemic. From 2021 onwards, there is a recovery of the situation with some indices, such as the EBITDA margin, which settle in 2022 at higher levels than in 2017.

*Table following on the next page*

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>ROE</b>	7,95	6,08	0,95	4,35	3,86	21,62	16,52	18,40	22,41	20,91
<b>ROCE</b>	6,20	4,61	0,99	3,64	3,44	16,96	13,17	13,23	15,93	15,92
<b>ROA</b>	5,01	3,67	0,60	2,92	2,66	12,49	8,85	9,36	10,93	11,15
<b>Profit margin</b>	12,35	10,96	2,17	8,83	11,90	13,69	16,33	16,65	18,97	16,67
<b>EBITDA margin</b>	24,95	24,09	18,12	21,86	19,91	20,02	23,40	23,51	26,30	22,70
<b>EBIT margin</b>	12,86	11,61	3,17	9,51	12,93	14,13	17,24	17,57	19,66	17,71
<b>EV/EBITDA</b>	14,03	19,33	22,57	16,70	23,64	14,09	15,31	17,06	13,33	14,73

*Table 2: EssilorLuxottica profitability ratios (%)*  
(Source: Orbis data)

If we also look at the sales ratios (see Table 3), we can see the same thing as before: the highest values for both indicators were reached in 2017 and, after a period of contraction in the following years, there is a clear recovery.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Capital turnover</b>	0,48	0,39	0,31	0,37	0,27	1,15	0,76	0,74	0,79	0,92
<b>Inventory turnover</b>	8,81	8,13	7,48	8,03	5,33	11,04	6,34	6,13	6,20	5,83

*Table 3: EssilorLuxottica sales ratios (%)*  
(Source: Orbis data)

The group's financial situation (see Table 4) is characterised by a progressive deterioration in liquidity: the current ratio and the quick ratio go from values above one (indicating a situation of temporal equilibrium between sources of financing and current investments) to values below one. On the other hand, the observation of the level of capitalisation and the degree of indebtedness is positive: the data show an increase in the weight of equity and, conversely, a decrease in the level of debt.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Current ratio</b>	0,97	1,03	2,22	1,91	0,94	1,52	0,94	1,15	1,07	1,49
<b>Quick ratio</b>	0,66	0,76	1,91	1,53	0,66	1,12	0,64	0,76	0,73	1,06
<b>Solvency ratio</b>	62,99	60,38	62,69	67,19	69,02	57,77	53,59	50,89	48,75	53,33
<b>Leverage</b>	35,89	41,73	42,63	33,71	25,37	40,83	43,45	52,50	51,18	45,78

*Table 4: EssilorLuxottica financial ratios (%)*  
(Source: Orbis data)

The data on productivity (see Table 5) appear to be positive, showing constant values or little growth in the turnover per capita and a more sustained growth in the investment per person employed.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Revenues per capita</b>	131	116	117	128	81	129	118	120	130	127
<b>Investment per employee</b>	323	348	425	386	363	142	218	214	226	190

*Table 5: EssilorLuxottica productivity ratios (thousands)*  
(Source: Orbis data)

### 3.2. Stellantis

Stellantis was officially created on 16 January 2021 through the merger of the FCA Group and the PSA Group, positioning it as a major global player in the automotive sector. The merger process started at the end of October 2019, resulting in one large company with the following companies as subsidiaries:

#### *Automotive area*

- FCA Italy
- Abarth
- Alfa Romeo
- FIAT
- Fiat Professional
- Lancia
- Maserati
- FCA US
- Chrysler
- Dodge
- Jeep
- Ram Trucks
- Citroën
- DS Automobiles
- Opel
- Peugeot
- Vauxhall

#### *Components area*

- Centro Ricerche Fiat
- Comau
- Free2Move
- Leasys
- Mopar
- PCMA
- Sevel
- Teksid
- VM Motori

This merger was motivated by the need to invest in CASE technologies, an acronym that stands for Connectivity, Autonomy, Sharing and Electrification. These areas represent the new directions in which the automotive sector is focusing its attention, as the sector itself undergoes significant change. This change is driven not only by the technological direction of most industries, but also by the growing need to reduce the environmental impact on surrounding communities. The merger between FCA and PSA has highlighted the scale of the change facing the industry. Indeed, a number of carmakers are seeking to join forces in order to meet the challenges posed by market changes and regulation. Both groups have strong historical legacies that, while contributing to their past success, have also become a burden that has affected their market position and made them less competitive than their competitors. Over the years, various circumstances contributed to the creation of the new group. A few years before 2009, when the merger between FIAT and Chrysler took place, the then CEO of FCA, Sergio Marchionne, began to explore the possibility of a possible merger with a group of similar size.

Moreover, in the years following the Chrysler merger, Marchionne repeatedly attempted to acquire General Motors (GM), even going so far as to plan a hostile takeover backed by a €60 billion loan from a European bank, known as the 'Cylinder' operation. According to economic analyses carried out by Marchionne himself, this operation would have resulted in cost savings of up to 40 per cent per vehicle produced. However, the operation was never completed due to GM's fierce opposition. After Marchionne's untimely death, Mike Manley took over and continued along the path set by his predecessor. Building on the previous collaboration between Chrysler and Peugeot, Manley developed the project to unite the two automotive giants, recognising their complementarity in many areas. As a result of the M&A, the two companies became geographically integrated. While FCA was more present in the American market, PSA was more rooted in the old continent. It is important to note that, unlike many other global automakers, neither FCA nor PSA quickly developed strategies to penetrate the Chinese market. This lack of presence in China limited their ability to respond to the growing demand for vehicles in the country. In addition, both groups faced significant challenges in terms of R&D investment. PSA had interesting projects in CASE technologies, but needed additional capital and strategic partners to compete with other manufacturers. FCA, on the other hand, was slow to enter the electrification market and lacked the financial strength to compete with its rivals. Its presence in North America was limited before it acquired Chrysler out of bankruptcy in 2009. Both groups had concentrated their resources on the European market, particularly in the low-margin small car segment. Under these circumstances, the merger between FCA and PSA was not a surprise, but rather a necessity for both companies. Over the five-year forecast period, the new Stellantis group expects combined sales of around EUR 170 billion and a forecast profit margin of between 5.5% and 7.5%. In addition, total synergies of around four billion Euros are expected, mainly resulting from a better allocation of resources for investments in platforms and propulsion systems due to the increased purchasing capacity of the group. These synergies will also result from the cooperation between the two groups and the integration of their respective research and development departments, which now have a combined workforce of more than 33,000 employees. These claims by the Stellantis group are backed up by the financial statements of FCA and PSA for the past few years, with a focus on the years from 2015, when hybrid and electric powertrains will start to take off, to 2020, as well as the financial figures for the first quarter of Stellantis. As Marchionne has predicted in the past, the future of the automotive industry will see a reduction in the number of small manufacturers in favour of a limited number of large multi-manufacturer automotive groups. This trend is motivated by overcapacity in the industry and has led to the creation of Stellantis with the aim of sharing knowledge between the two groups and expanding the portfolio of offerings to meet diversified demand while reducing the costs associated with overcapacity. In the short to medium term, Stellantis aims to achieve synergies of around 4 billion euros following the completion of the merger. These synergies will be cash flow positive in the first year of operation, with 80% of the synergies expected to be realised within five years. This is expected to create a total value of approximately EUR 25 billion in the first five years. According to the forecast, 40% of the annual synergies will be related to common technologies, products and platforms. A further 40% will come from procurement savings due to economies of scale and more favourable price negotiations as a result of the Group's size. The remaining 20% will come from savings in other areas such as marketing, administration and logistics. The synergies will be achieved by sharing platforms that allow the development of different vehicles, even with different sizes and body styles. For example, Alfa Romeo's Giulia and Stelvio share the same architecture, the Giorgio, while the Audi A3 and VW Passat are based on the Volkswagen Group's MQB architecture. A significant advantage for Stellantis following the merger is the availability of several successful platforms. These include the aforementioned Giorgio, the Small, the Compact and the brand new 500e platform, all from FCA.

On the other hand, PSA offers the CMP, the EMP2 and the recently developed eVMP, specifically designed for 100% electric vehicles. The possibility of sharing all these platforms, and in particular having two platforms for electric vehicles, will allow Stellantis to significantly reduce the development costs of future vehicles. Another key objective for the new group is to penetrate the Chinese market, currently the world's largest vehicle market. To date, both FCA and PSA have posted disappointing results in China. Combining resources represents an exceptional opportunity to capture a share of this market. The CEO announced the creation of a task force to understand the reasons for the disappointing results in China. To support this strategy, the Group has already entered into a joint venture with Foxconn for the production of digital cockpits and related services. This collaboration combines Stellantis' expertise in vehicle development with Foxconn's expertise in developing cutting-edge hardware and software for end users. This synergy between Stellantis and Foxconn is in line with the main objective of the merger: to meet the challenges and opportunities of the evolving automotive market. Sharing resources and expertise is critical to Stellantis' future success in a highly competitive and rapidly changing environment.

### 3.2.1. The economic and financial performance of Stellantis

For Stellantis, we also propose an analysis of the evolution of the economic, financial and capital conditions in order to highlight the impact of the most recent and significant merger. This is the one that led to the creation of the current corporate structure following the merger between the FCA group and the PSA group. As mentioned above, the merger process will be completed at the beginning of 2021. The profitability ratios (see Table 6) show significant growth in recent years, with the exception of 2020, the year most affected by the pandemic crisis. In particular, in 2022, ROCE and ROA reach their highest levels over the entire period, highlighting the Group's growing ability to adequately reward the capital invested. The EBITDA and EBIT margins also show increasing values, especially from 2021, the year of the merger.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>ROE</b>	26,59	25,56	12,22	27,89	18,18	29,36	16,05	1,59	8,56	8,07
<b>ROCE</b>	17,12	14,18	7,07	16,78	11,56	15,51	9,04	4,93	5,72	6,04
<b>ROA</b>	10,34	8,38	3,87	8,16	4,67	6,40	2,98	0,25	1,17	1,16
<b>Profit margin</b>	10,72	9,63	6,12	7,28	3,92	5,51	2,80	0,23	1,22	1,17
<b>EBITDA margin</b>	14,96	14,24	14,61	11,11	10,01	11,86	9,86	6,42	8,59	9,22
<b>EBIT margin</b>	11,10	10,15	5,95	4,70	4,71	6,39	4,32	2,36	3,39	3,49
<b>EV/EBITDA</b>	0,69	0,39	1,83	1,44	1,82	2,11	1,80	3,14	3,08	n.d.

Table 6: Stellantis NV profitability ratios (%)  
(Source: Orbis data)

Capital turnover shows a decreasing trend, which indicates a weakening of the efficiency level, while data on stock turnover show an increasing but fluctuating trend, which does not allow any significant conclusions to be drawn (see Table 7).

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Capital turnover</b>	1,51	1,40	1,09	2,01	2,29	2,28	2,02	1,83	1,60	1,63
<b>Inventory turnover</b>	10,35	13,15	8,88	11,30	10,79	8,65	9,16	9,76	7,72	8,44

Table 7: Stellantis NV sales ratios (%)  
(Source: Orbis data)

The assessment of Stellantis' financial profile is certainly positive (see Table 8). Liquidity figures are steadily increasing, as are capitalisation and debt levels.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Current ratio</b>	1,27	1,15	1,19	0,81	0,82	0,77	0,80	1,06	1,14	1,16
<b>Quick ratio</b>	1,01	0,98	1,02	0,58	0,59	0,49	0,56	0,81	0,83	0,85
<b>Solvency ratio</b>	38,88	32,78	31,71	29,25	25,71	21,79	18,55	15,48	13,67	14,43
<b>Leverage</b>	69,50	105,4	92,06	101,4	119,5	158,36	211,30	302,12	378,78	360,90

*Table 8: Stellantis NV financial ratios (%)*  
(Source: Orbis data)

Finally, the analysis of productivity ratios (see Table 9) also confirms the trend of improvement in the group's results, with significant growth in both sales value per employee and investment per employee.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Revenues per capita</b>	73	56	32	45	26	31	14	1	6	6
<b>Investment per employee</b>	702	665	826	554	546	487	467	483	527	538

*Table 9: Stellantis NV productivity ratios (thousands)*  
(Source: Orbis data)

#### 4. CONCLUSION

Growth strategies are a fundamental pillar of business management and competitive strategy formulation. To succeed in a constantly evolving global environment, companies need growth strategies that not only address emerging challenges, but also take full advantage of opportunities in international markets. This research focused on the strategic M&A transactions carried out in recent years by two large multinational groups, EssilorLuxottica and Stellantis N.V., to determine whether these growth strategies contributed to improved group performance. An analysis of the primary balance sheet indicators recorded by the groups over the last ten years shows a general improvement in economic and financial conditions compared with the previous situation. In addition to the liquidity indicators for EssilorLuxottica and the turnover indicators for Stellantis N.V., the data show a steady and continuous improvement in profitability ratios, debt ratios and productivity ratios, confirming the effectiveness and sustainability of the growth strategies adopted through mergers and acquisitions. It should be noted that the financial statements and the resulting ratios were significantly affected by the Covid-19 pandemic, making the data for 2020 and 2021 relatively insignificant for our research purposes. The current study was carried out on two large global companies whose success is well known, thanks in part to the national and international press. However, it is essential to extend the research:

- both in cases of failure, in order to understand the prospects and indicators that worsen after the acquisitions;
- and to a larger, statistically significant number of companies, to see if the results of the perspectives and indicators collected here can be confirmed for a more statistically significant set of companies and data.

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# THE EVOLUTION OF DIGITAL MARKETING WITH PERSONAL FACTORS: MEASURING THE IMPACT OF DIGITAL ADVERTISING AND DIGITAL AWARENESS ON CONSUMER IMPULSIVE BEHAVIOR

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## ABSTRACT

*This research explores the ever changing world of digital advertising and its impact on consumer impulsive behavior, an important aspect of the rapidly evolving digital marketing landscape. The main goal is to uncover how different factors in digital advertising, such as relevance, credibility, perceived usefulness, acceptance and awareness, directly or indirectly influence consumer impulsive behavior. By using linear regression and mediating models, the study analyzed responses from a representative sample of Croatian e-businesses (N=305). The results showed that digital advertising's relevance, perceived usefulness and acceptance significantly affect consumer impulsive behavior. However, credibility doesn't seem to have a noticeable impact. Moreover, the study found that digital awareness has a significant effect on consumer impulsivity through factors such as money availability, family influence and time availability. The uniqueness of this research lies in examining both the direct and indirect effects of various digital advertising factors on consumer behavior. By taking a comprehensive approach that considers multiple influencing factors, this study provides deeper insights into the complexities of consumer behavior in today's digital age. It significantly contributes to our understanding of how digital marketing influences consumer impulsivity and offers valuable implications for digital marketers and e-businesses.*

**Keywords:** Digital marketing, advertising, awareness, consumer impulsive behavior, Croatian e-businesses

## 1. INTRODUCTION

The rise of advertising has had an impact, on consumer behavior in recent times. Consumer engagement and purchasing patterns have undergone a transformation due to the emergence of media art and the growing awareness of online marketing strategies. Research conducted by Aiolfi, Bellini and Pellegrini (2021) as Santoso et al. (2020) shed light on how data driven digital advertising has revolutionized the field and how effective digital marketing can be at various levels of customer attention. This body of research provides insights into both the benefits and drawbacks of advertising revealing how well crafted digital advertisements can capture consumers attention and influence their purchasing decisions. Furthermore Dwivedi et al. (2021) and Shamim & Islam (2022) explore the applications of research in social media

marketing examining the impact of digital influencer marketing on trust levels and impulsive buying behaviors respectively. These studies are starting to reveal how digital marketing influences consumers impulsive behaviors. Yosep et al. (2021) as Al Azzam & Al Mizeed (2021) investigate the direct effects of digital marketing on consumer decision making processes and business performance. Their findings establish a connection between increased consumer engagement, through marketing platforms and impulsive buying tendencies. Sharifi Asadi Malafe et al. (2023). Abdelsalam et al. (2020) have conducted studies, on buying in social commerce and the influence of advertising values on compulsive and impulsive purchasing behaviors. Recent research suggests a trend; digital media art and digital awareness play a role in stimulating impulsive consumer behavior and serving as effective tools for brand promotion. This highlights the importance of gaining an understanding of factors within the context of digital advertising. Despite an abundance of research on advertising and its impact on consumer behavior many questions regarding the effects of online advertising factors such as acceptance, perceived usefulness, relevance and credibility on impulsive consumer behavior remain unanswered—especially concerning marketing agencies in Croatia. Although studies by Aiolfi, Bellini, Pellegrini (2021) Santoso et al. (2020) among others have explored the effects of advertising there is a lack of targeted research assessing how these specific advertising attributes directly influence impulsive buying tendencies within localized markets, like Croatia. This discrepancy can be attributed to the nature of marketing landscape and the unique cultural and economic factors that shape consumer behavior in different geographical areas. Moreover when conducting research it is important to take into account differences that can significantly impact the effectiveness and perception of advertising strategies (Badgaiyan & Verma 2015; Shamim & Islam 2022). In the case of marketing agencies, in Croatia it is crucial to explore the role of awareness in influencing impulsive consumer behavior. While previous studies by Al Azzam & Al Mizeed (2021) and Dwivedi et al. (2021) have shed light on the impact of marketing and consumer awareness in general there is a gap in research specifically examining how increased digital awareness relates to impulsive buying behaviors within Croatia. Additionally further investigation is needed to understand how individual factors such as resources, family influence and time availability moderate the connection between advertising and consumer behavior. Although there isn't an explanation of these factors functions within Croatian marketing agencies context, research, by Kumar et al. (2016) and Lina Y. Et al. (2022) suggests that these factors may indeed have an influence. Consequently the aim of this study is to address these gaps by conducting an analysis, on how advertising attributes and digital awareness influence consumer impulsive behavior in the specific market environment of Croatia. Additionally it aims to explore how personal factors moderate these effects. Ultimately this research seeks to achieve the following objectives:

- 1) Investigate how digital advertising (such as advertising relevance, credibility, perceived usefulness and acceptance) impacts consumer behavior among digital consumers in Croatia.
- 2) Examine the influence of awareness on consumer behavior among digital consumers in Croatia.
- 3) Explore the mediating role of factors (such as money availability, family influence and time availability) among digital consumers, in Croatia.

## **2. LITERATURE REVIEW AND THEORETICAL MODEL**

### **2.1. Digital marketing and advertising**

The behavior and purchasing habits of consumers are heavily impacted by marketing and advertising which are closely intertwined. Studies, by Aiolfi, Bellini and Pellegrini (2021) have examined how the evolution of advertising has contributed to the effectiveness of marketing strategies. These studies highlight the pros and cons of advertising as a crucial element in digital marketing.

It allows marketers to target consumer segments with messages thereby enhancing the effectiveness and relevance of their marketing campaigns. Similarly Santoso et al. (2020) emphasize the power of ads in capturing consumer attention and influencing their purchasing decisions in an era where attention spans are short. These studies demonstrate that advertising and digital marketing go hand in hand with successful advertising tactics being vital for success in marketing initiatives. Moreover the interplay between marketing and advertising is further underscored by their combined influence on consumer actions. For instance within the realm of marketing, Shamim and Islam (2022) explore how trust impacts buying behavior through contemporary forms of digital advertising like influencer marketing. This research reveals a link, between advertising efforts and consumer behavior. In a vein a study conducted by Al Azzam and Al Mizeed (2021) indicates that digital marketing advertising strategies can significantly influence consumer behavior. This research demonstrates the power of these strategies, in shaping purchasing decisions. Additionally studies like the one carried out by Kumar et al. (2016) offer evidence of this connection by highlighting the impact that firm generated content on social media—a popular tactic in digital advertising—can have, on consumer behavior.

## **2.2. Digital advertising and consumer impulsive behavior**

The impact of advertising, on consumer behavior has been extensively researched. Researchers Aiolfi, Bellini and Pellegrini (2021) have shown how data driven digital advertising, behavioral advertising can greatly affect consumer purchasing decisions by providing personalized and relevant content. The relevance of advertising content plays a role in triggering buying behaviors as highlighted by Badgaiyan and Verma (2015) who emphasize the influence of situational factors on impulsive purchases. Moreover studies conducted by Santoso et al. (2020) and Shamim and Islam (2022) demonstrate that in low attention environments effective digital advertising can capture consumer interest and prompt buying decisions particularly when the advertising messages are perceived as credible and useful. These studies provide evidence that strategic deployment of advertising—through delivering tailored, engaging and credible content—significantly contributes to stimulating behaviors among consumers thus showcasing the substantial influence of digital advertising in today's consumer market. The existing literature on advertising supports the hypothesis that the relevance of online ads has a significant positive impact on impulsive consumer behavior, among Croatian digital consumers. Based on the research conducted by Aiolfi, Bellini and Pellegrini (2021) it is highlighted that data driven digital advertising holds importance in increasing consumer engagement and encouraging impulsive buying behavior. Their study reveals that when online ads align closely with consumers interests and needs they are more likely to make purchases. This finding is further supported by Santoso et al. (2020) who argue that when consumers have attention levels well targeted digital ads can capture their interest and drive impulsive actions. The level of relevance, in advertising emerges as a factor in cutting through the noise of competing digital content grabbing customers attention and influencing their quick buying decisions. These findings align with the notion that relevant digital advertising plays a role in stimulating purchases, within Croatia's digital landscape. Consequently the study proposes a research hypothesis:

**H1.** Online advertising relevancy significantly and positively influences consumer impulsive behavior among digital consumers in Croatia.

The second hypothesis argues that the trustworthiness of advertising significantly and positively affects consumers impulsive purchasing decisions. This hypothesis is supported by the research conducted by Shamim and Islam (2022) as Hu, Chen and Davison (2019).

They emphasize how consumer trust and subsequent impulsive buying behaviors are directly influenced by the credibility of advertisements, which includes factors, like the authenticity of the message and the trustworthiness of the advertiser. When consumers perceive an ad as trustworthy they are more likely to rely on the information provided and make decisions about their purchases (Hu et al., 2019). This connection is particularly crucial in the realm where customers constantly encounter amounts of information and often depend on apparent credibility in advertisements to make instant buying choices. Consequently in the market, where it holds significant influence over consumers inclination, towards impulsive buying behaviors online advertisings credibility has become a critical factor. Finally this study presents a research hypothesis:

**H2.** Online advertising creditability significantly and positively influences consumer impulsive behavior among digital consumers in Croatia.

The perceived usefulness of online advertising and its influence on consumers' impulsive behaviors are the focal points of the third hypothesis. Literature such as that published by Tseng & Wei (2020) and Dastane (2020) highlights the importance of perceived usefulness in digital advertising, which is an area in which the utility and relevance of information provided in advertisements significantly influence the behavior of consumers. Consumers are more likely to make rash acquisitions when they believe digital advertisements are helpful because they offer helpful information or provide solutions to particular problems (Shamim & Islam, 2022). This relationship is especially relevant in digital settings, where consumers are looking for quick and efficient solutions. Therefore, the likelihood of engaging in impulsive purchasing behavior is increased, which is a pattern that is likely to be observed among digital consumers in Croatia. The perceived usefulness of advertising content informs consumers and adds value to their shopping experience. Finally, the study offers a research hypothesis:

**H3.** Online advertising perceived usefulness significantly and positively influences consumer impulsive behavior among digital consumers in Croatia.

The impact of advertising, on the behavior of digital consumers is substantial and beneficial. This claim is supported by studies conducted by Aguirre et al. (2016) and Noor, Mansoor and Shamim (2022) which explore how consumer acceptance of advertising plays a role in shaping their response to such advertisements. Acceptance is often influenced by factors like the advertisements design, personalization level and overall consumer experience. When consumers accept and engage with advertising they are more likely to be swayed by it leading them to make purchase decisions. In the realm where theres a volume of ads it becomes crucial for advertisers to align with customer preferences and expectations. Therefore the acceptance of advertising emerges as a driver of impulsive buying behavior, in Croatias digital consumer market. Lastly this study presents a research hypothesis:

**H4.** Online advertising acceptance significantly and positively influences consumer impulsive behavior among digital consumers in Croatia.

### **2.3. Digital awareness and consumer impulsive behavior**

Digital literacy plays a role, in shaping the behavior of consumers in Croatia with existing research supporting its impact on impulsive buying tendencies. When we talk about " literacy " we refer to how consumers understand and grasp the various digital marketing tools, platforms and persuasive strategies employed in digital advertising.

Studies conducted by Aiolfi, Bellini and Pellegrini (2021) as Dwivedi et al. (2021) shed light on the importance of consumer awareness in the digital realm, particularly their understanding of online behavioral advertising and their responses to it. This level of awareness enables consumers to better comprehend and appreciate the relevance and personalization of ads thus increasing the likelihood of purchases. Moreover Shamim and Islams (2022) study reveals that having literacy especially when it comes to evaluating the credibility of influencer marketing significantly influences consumer trust levels and amplifies impulsive buying behaviors. These findings suggest that in a driven market like Croatia where people heavily consume media content heightened digital literacy can lead to increased impulsive purchasing due to an advanced understanding and engagement, with digital marketing materials. This is because people, in this market are more likely to come across marketing content. Moreover the research conducted by Tseng and Wei (2020) and Hu, Chen and Davison (2019) which examine how consumer behavior is influenced by being aware of marketing strategies like mobile media richness and social commerce offers evidence supporting the connection between digital awareness and impulsive purchasing behavior. Consumers who have a level of awareness are more inclined to appreciate the value of targeted marketing efforts and therefore respond promptly. It's crucial to bear in mind that this holds importance in the context, where digital media plays a significant role in consumers daily lives. The increased likelihood of customers making purchases can be partially attributed to their understanding of how marketing works and their general familiarity with various tactics employed in digital advertising. This correlation between awareness and impulsive buying behavior in Croatia underscores the role that comprehending and engaging with digital marketing plays, in contemporary consumer behavior.

**H5.** Digital awareness significantly and positively influences consumer impulsive behavior among digital consumers in Croatia.

## **2.4. Mediating role of personal factors**

### *2.4.1. Digital awareness, money availability and consumer impulsive behavior*

Research, in the field of marketing and consumer behavior suggests that the presence of resources plays a crucial role in mediating the relationship between digital awareness and impulsive consumer behavior among digital consumers in Croatia. Various studies, such as those conducted by Aiolfi, Bellini and Pellegrini (2021) as Al Azzam and Al Mizeed (2021) shed light on how digital awareness influences consumer purchasing decisions. This emphasizes the significance of comprehending marketing strategies and consumer behavior within the realm of the landscape. In this context having access to means can potentially have an impact. Customers who possess awareness are typically more well informed allowing them to acknowledge and appropriately respond to targeted marketing tactics (Tseng & Wei 2020). Nevertheless their level of engagement in purchasing is heavily influenced by their circumstances. Detailed research conducted by Badgaiyan and Verma (2015) along with Hu, Chen and Davison (2019) delves into the intricacies of buying behavior by distinguishing between impulses to buy and actual impulsive purchases. This further reinforces our hypothesis by underscoring that the realization of behavior is contingent upon ones access, to resources. Increased digital awareness can lead to a desire or impulse to make purchases. However the ability to actually act on this behavior depends on the availability of resources (Shamim & Islam 2022). In the realm of digital commerce, where opportunities, for purchasing're abundant and convenient it becomes more important to have the necessary means to translate that desire into actual purchases. It is worth noting that peoples financial situations can vary greatly in this context.

Furthermore studies conducted by Shamim and Islam (2022) as Tseng and Wei (2020) delve into how digital marketing strategies such as mobile media richness and influencer marketing effectively engage customers and influence their buying decisions (Aiolfi et al., 2021). However for this engagement to actually result in buying behavior from customers they must first possess the capability to do so (Badgaiyan & Verma 2015). In the market, where consumers are increasingly exposed to sophisticated digital advertising techniques the availability of money plays a crucial role, in enabling impulsive desires triggered by digital awareness and moderating the strength of this relationship (Al Azzam & Al Mizeed 2021; Dwivedi et al., 2021). In summary the existing research indicates that while being digitally aware may increase the chance of buying the actual occurrence of this behavior, in the Croatian consumer market is heavily influenced by ones financial means. Lastly the study presents a research hypothesis;

**H6.** Money availability significantly and positively mediates the relationships between digital awareness and consumer impulsive behavior among digital consumers in Croatia.

#### *2.4.2. Digital awareness, family influence and consumer impulsive behavior*

The influence of family plays an positive role, in the relationship between awareness and impulsive consumer behavior among digital consumers in Croatia. Research conducted by Badgaiyan and Verma (2015) explores how situational factors, including influences impact buying behavior. These studies highlight the role that families play in shaping consumer behavior in the realm of digital consumption. The focus of their study was on understanding how familial influences (Badgaiyan & Verma 2015) can significantly impact an individuals response to advertising based on their opinions and perspectives on forms of digital content. Additionally Dwivedi et al. (2021) discuss the implications of influences on the effectiveness of digital marketing and suggest that family members opinions can either enhance or reduce the impact of digital awareness on impulsive purchasing decisions. Furthermore other research studies conducted by Hu, Chen and Davison (2019) as Aguirre et al. (2016) emphasize the importance of social factors like family influence in online shopping environments. They argue that the credibility and acceptance of marketing messages are often filtered through conversations and viewpoints, within families, which can either reinforce or diminish tendencies triggered by digital awareness. The research conducted by Shamim and Islam (2022) supports this idea demonstrating the impact of influencer marketing, on families perception and behavior within the digital marketplace. Given the significance of ties and influence in this context it is reasonable to anticipate that family influence would play a role in mediating the connection, between digital awareness and consumer impulsive behavior aligning with the proposed hypothesis.

**H7.** Family influence significantly and positively mediates the relationships between digital awareness and consumer impulsive behavior among digital consumers in Croatia.

#### *2.4.3. Digital awareness, time availability and consumer impulsive behavior*

The amount of time one has available plays a role, in how digital awareness and consumer impulsive behavior're connected. When individuals have time they are more likely to encounter and process advertisements, which can influence their decision to make impulsive purchases. Research by Badgaiyan & Verma (2015) highlights the importance of time availability in determining if consumers act on their urges often triggered by marketers activities. Furthermore Aiolfi, Bellini and Pellegrini (2021) emphasize that spending time online increases exposure to data driven advertising and impacts consumers purchasing decisions. This suggests that the time consumers have the the likelihood of encountering and being influenced by digital ads. Additionally studies by Santoso et al. (2020) and Dwivedi et al. (2021) underscore the

effectiveness of advertising in capturing attention during short attention spans. Hence regardless of attention level the duration consumers spend online significantly affects their inclination, towards purchases. Furthermore recent studies conducted by Shamim and Islam (2022), as Al Azzam and Al Mizeed (2021) delve into the impact of digital marketing strategies, particularly those involving influencer marketing on customer engagement and impulse purchases. These researchers emphasize the importance of building trust and fostering a sense of connection with customers over a period. They highlight how customers having time to absorb and respond to marketing content plays a pivotal role in facilitating such engagement. Moreover Hu, Chen and Davison (2019) demonstrate that prolonged interaction with content, which is contingent upon time availability can enhance social support and source credibility in the realm of social commerce. Both these factors are crucial, in driving buying behaviors. Hu, Chen and Davison (2019) provide an example to support this notion. Therefore within the context of consumers it becomes evident that time availability acts as a key mediator transforming digital awareness into actual impulsive purchasing actions.

**H8.** Time availability significantly and positively mediates the relationships between digital awareness and consumer impulsive behavior among digital consumers in Croatia.

After reviewing and synthesizing the literature pieces of evidence, the study develops a research framework.

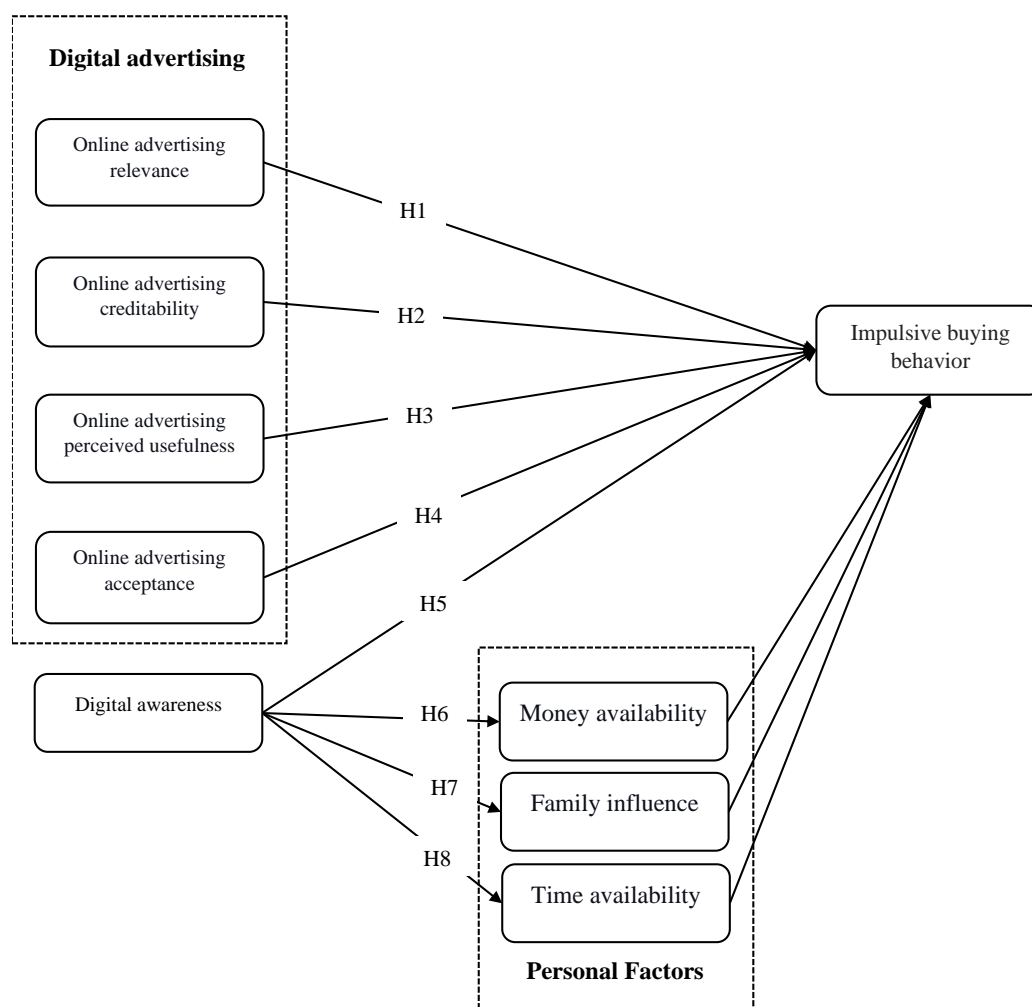


Figure 1: Theoretical framework



### **3. RESEARCH METHODOLOGY**

#### **3.1. Research Design**

A research methodology that employs survey questionnaires, in nature is a justified approach for studying the correlations between digital awareness, time availability and consumer impulsive behavior. This particular research design enables the gathering of data from a sample size ensuring statistical validity and reliability (Watson, 2015). This approach aligns with the research methods used in studies related to marketing research. For instance Aiolfi, Bellini and Pellegrini (2021) as Al Azzam and Al Mizeed (2021) also utilized quantitative methodologies to comprehend the impact of digital marketing on consumer behavior. This further highlights the effectiveness of this approach in capturing trends and patterns in consumer responses. Moreover employing survey questionnaires facilitates the evaluation of phenomena like buying behavior, digital awareness and the influence of time availability as demonstrated by Bloomfield & Fisher (2019). Furthermore adopting an approach through survey questionnaires is highly suitable for investigating how factors such as time availability mediate the connection, between awareness and consumer behavior. This aligns, with the research approaches used in the studies conducted by Shamim and Islam (2022) and Hu, Chen and Davison (2019). Both studies rely on data to explore the connections between different aspects of digital marketing. Survey questionnaires, being structured in nature allow for measurement of variables. Offer a comprehensive overview of consumer tendencies. These characteristics are crucial when examining the dynamics of marketing effects. Furthermore, as emphasized by Dwivedi et al. (2021) and Kumar et al. (2016) quantitative surveys serve as tools for testing hypotheses. Establishing causal relationships. These factors are essential for gaining an understanding of the marketing landscape and consumer behavior, in Croatia.

#### **3.2. Data collection procedure**

To efficiently gather data from consumers served by e-commerce marketing agencies we implemented a structured online survey questionnaire. This approach aligns with studies, like Aiolfi, Bellini and Pellegrini (2021) and Al Azzam & Al Mizeed (2021) that have utilized surveys to analyze customer responses to digital advertising. The effectiveness of this distribution method in reaching consumer groups engaged in marketing campaigns has been highlighted by Santoso et al. (2020). Shamim & Islam (2022). Our questionnaire aims to collect information along with insights into awareness levels encounters with different types of digital advertising impulsive buying behavior and personal factors, like time availability and family influence. Based on the recommendations provided by Badgaiyan and Verma (2015) as Hu, Chen and Davison (2019) our survey will include a mix of Likert scale multiple choice and open ended questions. The main objective of this survey is to gather insights. We used closed ended questions to collect data regarding awareness and personal factors while the Likert scale questions assessed consumers attitudes and behaviors towards digital advertising. Ended questions were included to gain insights, into consumers experiences and perceptions of digital advertising within Croatian e-commerce. To ensure clarity, relevance and effectiveness we followed the methodology outlined by Dwivedi et al. (2021). Kumar et al. (2016) by conducting a pilot test with a selected group of consumers before administering the survey to a population. This approach is supported by studies such, as Nazir et al. (2023) and Cruz Cárdenas et al. (2021). This sampling technique aims to classify consumers according to criteria, like age, gender and their frequency of shopping. The goal is to ensure a representation of consumer segments. Once the data has been collected it is analyzed using tools to identify correlations and assess how different factors influence the relationship between awareness and impulsive buying behavior.

By combining a survey with an systematic sampling method this approach provides robust and insightful data that helps us understand consumer behavior in the context of Croatian digital marketing. In total we received 323 responses from consumers. 18 incomplete surveys were excluded from the study. Hence we used 305 responses, for our analysis.

### **3.3. Measurement scales**

The study's methodological rigor and credibility are improved using validated and reliable 5-point Likert scales. Since established scales have been extensively tested for validity and reliability, they ensure consistent and accurate measurement of constructs (George and Mallery, 2019). A social science research standard, the 5-point Likert scale, makes responses easy to understand while providing enough variability for nuanced analysis (Pallant, 2020). This method ensures that the study's findings are empirically sound, making them more reliable and comparable to other research. The study used 3 items of money availability, 3 items of family influence and 3 items of time availability from the study of Badgaiyan & Verma (2015). The study adapted 3 items of consumer impulsive behavior from the study of Sharifi Asadi Malafe et al. (2023). The study also adapted 3 items of digital advertising acceptance, 3 items of digital advertising creditability and 8 items of digital advertising relevance and 4 items of perceived usefulness from the study of Aiolfi, Bellini & Pellegrini (2021). In the end, the study adapted 5 items of digital awareness from the study of Muthuswamy & Nithya (2023).

### **3.4. Data analysis**

When it comes to conducting research and analyzing data using SPSS (Statistical Package, for the Social Sciences) is a choice. This software is known for its robustness, user interface and wide acceptance in the community. It's particularly helpful for researchers who may not have a background as it allows them to efficiently perform complex analyses. Field (2013) highlights how SPSS is accessible to individuals without training. Moreover SPSS can handle datasets. Offers a range of statistical tests, including advanced regression analysis. This versatility makes it suitable for research needs as discussed by George and Mallery (2019). Pallant (2020) also emphasizes how adaptable SPSS is in studies that employ statistical approaches. IBMs reports further confirm the usage of SPSS in research ensuring consistency and standardization across studies. Considering these factors it becomes evident that SPSS serves as a tool for conducting statistical analysis, in research studies.

## **4. RESULTS**

### **4.1. Descriptive statistics**

The insights provided by the data, in Table 1 give us information about a group of 305 individuals specifically focusing on their business nature, gender, education and digital experience. The distribution within each category reveals trends and patterns. Lets begin with the business nature; we can see that there is a preference for products over services as 59.7% (182 individuals) are involved in products while 40.3% (123 individuals) are engaged in services. This might suggest that product based businesses are more popular or favored among the demographic we analyzed. Moving on to gender distribution we find that the sample is fairly balanced with a predominance; 53.8% (164 males) compared to 46.2% (141 females). This close representation of both genders could indicate a level of gender diversity within the business environment or within our selected sample. When it comes to education there is an inclination towards levels of education as a significant majority (68.9%, 210 individuals) hold a Masters degree. This suggests that our sample consists of educated individuals and implies a connection between higher education and involvement, in business.

The remaining participants are divided among backgrounds with a majority having completed Bachelor's or equivalent degree (18%, 55 individuals) followed by Postgraduate studies or PhD degree (11.8%, 36 individuals) and High School (1.3%, 4 individuals). This shows a range of experiences, within the group. Additionally when it comes to experience the majority of participants have been engaged for 3-4 years (65.9%, 201 individuals) followed by 1-2 years (25.2%, 77 individuals) and a smaller percentage with, over 5 years of experience (8.9%, 27 individuals). These statistics suggest that the group is relatively young and well versed in technologies indicating that most have recently entered the business landscape.

Demographics		Frequency	Percent	Valid Percent	Cumulative Percent
Business nature	Services	123	40.3	40.3	40.3
	Products	182	59.7	59.7	100.0
	Total	305	100.0	100.0	
Gender	Male	164	53.8	53.8	53.8
	Female	141	46.2	46.2	100.0
	Total	305	100.0	100.0	
Education	High School	4	1.3	1.3	1.3
	Bachelor's or Equivalent Degree	55	18.0	18.0	19.3
	Master or Equivalent Degree	210	68.9	68.9	88.2
	Postgraduate studies or PhD degree	36	11.8	11.8	100.0
	Total	305	100.0	100.0	
Digital experience	1-2 years	77	25.2	25.2	25.2
	3-4 years	201	65.9	65.9	91.1
	5 and above years	27	8.9	8.9	100.0
	Total	305	100.0	100.0	

*Table 1: Descriptive statistics*

## 4.2. Regression analysis

The regression analysis presented in Table 2 provides an understanding of how factors, in digital advertising influence consumer impulsive behavior. By examining five hypotheses the analysis sheds light on which aspects of advertising have the significant impact on consumer impulses. Hypothesis 1 (H1) investigates the effect of advertising relevance on consumer behavior. The findings indicate an impact with a Beta value of 0.145 and a significant t value of 2.401. Since the p value is below the threshold of 0.05 at 0.017 we accept this hypothesis. This highlights the influence that relevant digital advertising content has on stimulating buying behaviors among consumers. It suggests that digital ads are more likely to prompt purchase decisions when they closely align with consumer interests and needs. Hypothesis 2 (H2) examines the impact of advertising credibility on consumer behavior. In contrast to H1 the results here show a Beta value of 0.080 and a t value of 1.474 with a p value of 0.141. As the p value exceeds the threshold of 0.05 we reject H2 indicating that credibility, in advertising does not significantly affect consumer behavior in this context. This discovery is quite fascinating because it suggests that while credibility plays a role, in advertising it may not be the factor in influencing purchases. Hypothesis 3 (H3) and Hypothesis 4 (H4) both have an impact on consumer behavior.

H3 explores the influence of how useful digital advertising's perceived to be with a Beta value of 0.154 and a t value of 3.016 along with a p value of 0.003. Similarly H4 examines the impact of accepting advertising showing a Beta value of 0.133 a t value of 2.425 and a p value of 0.016. Both hypotheses are supported, emphasizing the role that perceived usefulness and acceptance of advertising play in driving impulsive consumer actions. This indicates that when consumers find ads acceptable they are more likely to make impulsive purchases. Lastly Hypothesis 5 (H5) investigates the influence of awareness on consumer behavior. This hypothesis has the impact with a high Beta value of 0.384 and a t value of 7.159 supported by a p value of 0.000. Accepting this hypothesis reveals a relationship, between digital awareness and impulsive buying behavior. This suggests that when consumers are digitally aware they are more likely to make purchases. It highlights the influence of awareness, on consumer behavior in the world. As a result these findings give us an understanding of how various aspects of advertising affect impulsive consumer behavior. While factors such as relevance perceived usefulness, acceptance and digital awareness all play a role enough the credibility of digital advertising does not have a significant impact in this particular context. This analysis provides insights, for marketers and advertisers who want to use channels to encourage consumer purchasing decisions.

Linear Model	Hypotheses	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
					Tolerance	VIF
(Constant)			.587	.557		
Digital advertising relevance->Consumer impulsive behavior	1	.145	2.401	.017	.409	2.447
Digital advertising credibility->Consumer impulsive behavior	2	.080	1.474	.141	.512	1.954
Digital advertising perceived usefulness->Consumer impulsive behavior	3	.154	3.016	.003	.576	1.736
Digital advertising acceptance->Consumer impulsive behavior	4	.133	2.425	.016	.496	2.018
Digital awareness->Consumer impulsive behavior	5	.384	7.159	.000	.520	1.924

*Table 2: Regression analysis (Direct effects)*

The models summary, in Table 3 offers insights into how the model fits and predicts impulsive behavior in consumers. The R value, which stands at 0.743 shows a correlation between factors like digital awareness perceived usefulness (PU) acceptance, credibility, relevance of digital advertising and consumer impulsive behavior. This correlation is further supported by an R Square value of 0.552 suggesting that these factors can explain 55.2% of the variation in consumer behavior. According to Cohen (1988) a value of this magnitude for R Square indicates an effect size and a robust model. The Adjusted R Square value is slightly lower at 0.545 as it considers the number of predictors while affirming the strength of the model. The standard error of estimate at 0.47101 is relatively low indicating that the predictions are accurate.

Additionally the F Change statistics ( $F=73.710$ ,  $df1=5$ ,  $df2=299$ ,  $p<0.000$ ) conventional thresholds (e.g., Hair et al., 2010) further confirming the statistical significance of the overall model. Lastly the Durbin Watson statistic of 1.844 falls within a range ( between 1.5 to 2.5 as suggested by Field, 2013). This indicates that there are no issues, with autocorrelation. Overall these indicators suggest that the model is effective and trustworthy, in understanding how aspects of digital advertising influence consumer behavior.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.743 <sup>a</sup>	.552	.545	.47101	.552	73.710	5	299	.000	1.844
a. Predictors: (Constant), Digital awareness, Digital advertising PU, Digital advertising acceptance, Digital advertising credibility, Digital advertising relevance										
b. Dependent Variable: Consumer impulsive behavior										

*Table 3: Model summary*

The regression analysis presented in Table 4 focuses on examining how money availability, family influence and time availability mediate the relationship, between awareness and consumer impulsive behavior. To evaluate each hypothesis (H6, H7, H8) we consider the significance of the coefficients (Beta) and their corresponding p values with a threshold of accepting values below 0.05.

- 1) Hypothesis 6 (H6); This hypothesis investigates whether money availability acts as a mediator between awareness and consumer impulsive behavior. The standardized coefficient (Beta) is [0.205]. The significance level (Sig.) is [0.001]. Since the p value is below 0.05 we accept Hypothesis 6. This finding indicates that increased awareness has an influence on consumer impulsive behavior through the mediating factor of money availability. It suggests that when consumers are digitally aware they are more likely to engage in buying if they have enough money.
- 2) Hypothesis 7 (H7); This hypothesis explores how family influence mediates the relationship between awareness and consumer impulsive behavior. The Beta value is [0.225] with a p value of [0.000]. We accept this hypothesis since its p value is significantly lower, than 0.05. This suggests that the influence of family plays a role, in how being aware of resources translates into impulsive consumer behavior. The attitudes and actions of ones family can greatly shape how an individuals digital awareness affects their purchasing decisions.
- 3) Hypothesis 8 (H8) examines the mediating effect of time availability on the relationship between awareness and consumer impulsive behavior. The Beta value for this hypothesis is [0.280] with a p value of [0.000]. Hypothesis 8 is supported, indicating that time availability plays a mediating role. This emphasizes that the amount of time consumers have available influences how digital awareness impacts their behavior. When individuals have time and high digital awareness it increases the likelihood of engaging in impulsive buying behavior.

All three hypotheses (H6, H7, H8) are confirmed, demonstrating the roles played by money availability, family influence and time availability in shaping the relationship between awareness and consumer impulsive behavior. These findings suggest that while digital awareness directly affects buying tendencies these mediating factors also play a role in influencing its impact. Understanding these relationships provides insights, for marketers and advertisers when developing strategies to effectively influence consumer behavior by taking these mediating elements into consideration.

Mediation Model	Hypotheses	Standardized Coefficients Beta	Sig.
Digital awareness->Money availability->Consumer impulsive behavior	6	.205	0.001
Digital awareness->Family influence->Consumer impulsive behavior	7	.225	0.000
Digital awareness->Time availability->Consumer impulsive behavior	8	.280	0.000

*Table 4: Regression analysis (Mediating effects)*

## 5. DISCUSSION

The study has been conducted in Croatian markets where the aim was to test if consumers follow digital advertisements to buy impulsively even what they feel in the presence of personal factors, including money availability, family influence and time availability. The study targeted consumers using a survey questionnaire technique. The study discusses the findings with the previous studies regarding the influence of digital advertising elements on impulsive consumer behavior. In discussing the advantages and drawbacks of online behavioral advertising, Aiolfi, Bellini, and Pellegrini (2021) highlight the applicability and acceptance of digital ads. These findings are supported by our study, which shows that consumer impulsive behavior is strongly influenced by the relevance and acceptance of digital advertising, supporting the notion that persuasive digital advertising motivates consumers to take action. Similarly, Badgaiyan and Verma (2015) evaluate the influence of situational factors on impulsive purchasing behavior; our study addresses this topic by demonstrating the mediating role that digital awareness plays in consumer impulsivity. According to Santoso et al. (2020), even minute digital cues impact customer behavior regarding the efficacy of digital advertising in low-attention situations. This aligns with our findings, which show that impulsive buying is greatly impacted by even less direct factors like digital awareness. Muthuswamy and Nithya (2023) draw attention to how digital awareness affects productivity at work. Our research goes beyond this by demonstrating the influence of digital awareness on consumer behavior, pointing to a more widespread effect of digital savviness. The works of Pallant (2020), George and Mallery (2019), and Field (2013), who offer thorough instructions on using statistical software for data analysis, support the methodological approach of our study. Using a comparable level of statistical rigor, our analysis validates these methodologies' applicability in modern research. In terms of particular results, Shamim and Islam (2022), who address how message and media credibility affect consumer trust and impulsive buying, find resonance with our study's emphasis on the significance of digital awareness in influencing consumer behavior. Furthermore, similar to our study's focus on digital advertising factors, Al-Azzam and Al-Mizeed (2021) investigate the impact of digital marketing on purchasing decisions. The results of our study add to the corpus of knowledge by presenting empirical proof of the distinct effects of different digital advertising elements on impulsive behavior in consumers. This supports earlier research that looked at different facets of digital influence on consumer behavior and goes beyond it by providing a more complex understanding of these connections.

### 5.1. Managerial implications

The conclusions of this study have implications, for Croatian digital e-businesses in terms of marketing strategy and customer engagement. Firstly it highlights the importance of perceived value and relevance in advertisings impact on consumer behavior. To address this Croatian e-businesses should invest in data driven advertising campaigns that are tailored to customer preferences, behaviors and needs. By utilizing analytics these companies can create attractive and relevant digital advertisements that align with consumer interests and behaviors going beyond just the product itself to consider timing and context.

The study also emphasizes the role of awareness in influencing impulsive consumer behavior. This presents an opportunity for Croatian e-businesses to engage with and educate their customers. By creating platforms and informative content that enhance awareness businesses can build a more knowledgeable and engaged customer base. This approach may increase the likelihood of purchases especially when combined with utilization of digital platforms to deliver timely and enticing offers or promotions. Furthermore e-businesses should tailor their marketing campaigns to appeal to aspects of their customers lives while considering factors such, as funds, family influence and time availability. Overall this study underscores the need for Croatian e-businesses to focus on data driven advertising strategies that prioritize relevance and value while also investing in efforts to increase awareness among their customer base. Providing payment choices could alleviate concerns, about the availability of funds and marketing campaigns that center around family can take advantage of the influence that family has on consumer decision making. By integrating these insights into their marketing approaches Croatian online businesses have the potential to develop powerful and successful campaigns that will ultimately boost sales and improve customer interaction in the digital age.

## **5.2. Limitations and future directions**

One of the limitations of this study is its focus, on a subset of the population, which may restrict the generalizability of the results. The dataset used to draw conclusions might not represent the more diverse consumer base in various international markets. Since this study is limited to a demographic findings about the impact of advertising on impulsive behavior in consumers may vary when considering other demographic groups or cultural contexts. Additionally important factors like environmental influences on consumers impulsive behavior may have been overlooked due to the studys narrow focus on direct and mediating effects of digital factors on consumer behavior. For research directions it would be beneficial to expand the study by including an more diverse sample from different geographic areas and demographic groups. This would help determine if the observed trends are consistent across cultures and consumer segments. Furthermore incorporating a range of variables such, as status, psychological drivers of consumer behavior and environmental factors would provide a more comprehensive understanding of what influences consumers impulsive buying behavior. Further research could explore the long term impact of advertising, on consumer behavior examining whether these effects persist over time or change in response to shifting market trends and consumer perspectives. Additionally considering the advancement of marketing technologies it would be valuable to investigate how emerging trends such as virtual reality and artificial intelligence shape consumer behavior. Such studies have the potential to provide insights, for marketing strategies.

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## THE FACTORS OF USING VIRTUAL TECHNOLOGY IN SECONDARY EDUCATION IN THE REPUBLIC OF CROATIA

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### **ABSTRACT**

*The subject of this research is to determine the factors of using virtual technology in secondary education in the Republic of Croatia from the perspective of teachers working in secondary schools. The research is based on examining the relationship between the user's attitude about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning, examining the relationship between the use of virtual reality technology and attending workshops (education) where encountered this technology and examined the differences in the use and willingness to use virtual reality technology according to the level of self-confidence of the test participants in the use of digital technologies. 135 teachers from six secondary schools participated in the research, divided according to gender, type of school and level of self-confidence in using digital technologies. The results indicate that there is a strong correlation between the attitude of users about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning. A strong correlation was established between the use of virtual reality technology and attending workshops (education) where teachers encountered this technology. The research did not establish any connections between the level of self-confidence of the test participants in the use of digital technologies and the use and willingness to use virtual reality technology.*

**Keywords:** *Virtual reality, teachers, high schools*

### **1. INTRODUCTION**

Virtual reality (VR) is increasingly becoming an indispensable part of modern education, providing students and teachers with a unique learning experience. This innovative technology transforms traditional teaching methods and opens the door to new, interactive pedagogical approaches. Students today learn and gain experience in the so-called using the experiential method, and that is why Hu-Au and Lee (2017) call this age the Experience Age. One of the key potentials of virtual reality technology in education lies in the creation of fully immersive environments that provide students with the opportunity to explore and experience concepts beyond the confines of the classroom. Therefore, virtual reality is the best tool for experiential learning. Virtual reality is 10% real and 90% virtual (Fernandez, 2017). Personalized learning adapted to the individual needs of students and encouraging collaborative learning are just some of the benefits of using virtual reality technology in education. It is important to note that the application of this technology does not replace traditional methods, but complements and enriches them. Teachers and educators remain key in terms of guiding learning, but they have the opportunity to use virtual reality technology as a means to increase efficiency and engage students in a new, innovative way. Martín-Gutiérrez, Efrén Mora, Añorbe-Díaz and González-Marrero (2016) list four basic advantages in using virtual technologies. Motivating and engaging, which enables a feeling of immersion in the reality around you, a constructivist approach to learning, mutual interaction and interaction with objects in virtual reality, are the advantages of virtual reality technology in education. The use of virtual reality technology increases students' engagement and concentration, and the interactive environment encourages them to be more active in their work (Boyles, 2017).

Numerous studies show how virtual reality technology is used in the field of medical education (Jiang, Vimalasvaran, King Wang, Boon Lim, Reddy Mogali, and Tudor Car, 2022), history education (Yildirim, Elban, and Yildirim, 2018), in the field of arts (Domingo and Bradley, 2017), geriatric medicine (Dyer, Swartzlander and Gugliucci, 2018), mechanical engineering (Carbonell-Carrera and Luis Saorin, 2017), nursing (Saab, Hegarty, Murphy and Landers, 2019), construction (Lucas, 2018), dental medicine (Roy, Bakr and George, 2017) and many others. In addition to the areas of use, research also brings positive effects of the application of virtual reality technology in teaching. Wu, Yu and Gu (2020) analyzed articles from professional literature published from 2013 to 2019. Through the analysis, they singled out 35 studies, on the basis of which they concluded that learning with virtual reality technology is more effective than classical learning models, and the greatest effect was recorded among students aged 5 to 18 years. Efficiency was manifested in the improvement of acquired knowledge and in the development of skills. In addition to the advantages of virtual reality technology, it also has its potential disadvantages. Nausea, dizziness, confusion, mood changes, fatigue or stress are just some of the potential reactions of the body and mind to the use of virtual reality technology (Madary and Metzinger, 2016). Valorizing all the advantages and disadvantages of virtual reality technology, the perspective of using this technology in education promises to transform traditional teaching methods, providing students with an interactive learning experience outside the classroom.

## **2. OBJECTIVE, PROBLEMS AND HYPOTHESES OF THE RESEARCH**

The aim of the research is to determine the factors of using virtual technology in secondary education in the Republic of Croatia from the perspective of teachers working in secondary schools.

P1: To examine the relationship between users' attitudes about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning.

H1: There is a statistically significant relationship between the attitude of users about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning.

P2: To examine the connection between the use of virtual reality technology and attending workshops (education) where they encountered this technology.

H2: There is a statistically significant relationship between the use of virtual reality technology and attending workshops (education) where teachers were exposed to this technology.

P3: To examine the difference in the use and willingness to use virtual reality technology according to the level of self-confidence of the test participants in the use of digital technologies.

H3: There is a statistically significant relationship between the level of self-confidence of the test participants in the use of digital technologies and the use and willingness to use virtual reality technology.

### 3. RESEARCH METHODOLOGY

A total of 135 teachers from six secondary schools in Sisak-Moslavina County participated in the research. The research participants were selected using a random selection method, and they were stratified according to the type of school they work in and according to the educational field to which the subject they teach belongs. Teachers of vocational subjects are also stratified according to the educational sector to which the subject they teach belongs. Teachers of both sexes participated in the research, and the research was anonymous and voluntary.

83 (61%) female teachers and 52 (38%) male teachers participated in the research distributed from Novska High School, Tina Ujević High School, Kutin, Sisak Technical School, Topusko High School, Viktorovac High School and Sisak Gymnasium.

Table 1 shows that 34.07% of respondents who took part in filling out the questionnaire came from high school, and 65.93% from vocational schools.

*Table 1: Classification of respondents according to the type of school*

Classification of respondents according to the type of school	N	Percentage %
Gymnasium	46	34,07
Vocational	89	65,93

*N=number of study participants*

Table 2 shows the distribution of survey participants according to the educational field to which the subject they teach belongs. The majority of participants teach a subject that belongs to the technical and IT field (25.38%), approximately a similar percentage of respondents teach a subject that belongs to the language-communication field (22.31%) and the social-humanities field (21.54%).

*Table 2: Classification of respondents according to the educational field to which the subject they teach belongs*

Classification of respondents according to the educational field to which the subject they teach belongs	N	Percentage %
Language and communication area	29	22,31
Math area	9	6,92
Natural history area	22	16,92
Technical and IT area	33	25,38
Social and humanistic area	28	21,54
Art area	1	0,77
Physical and health area	8	6,15

*N= number of study participants*

The research was conducted in November 2023. The research was carried out by the author himself. Before the start of the research, the principals of secondary schools were contacted by e-mail and consent was requested for the teachers' participation in the research. A survey questionnaire was constructed for the purposes of this research. The questionnaire was partially constructed according to the survey questionnaire of Cooper, Park, Nasr, Thong and Johnson (2019). At the beginning, the questionnaire provides a brief insight into the research and the time required to fill out the questionnaire.

In the first part of the questionnaire, general information about the respondent that is relevant for the research was examined, such as gender, type of school where the participants work, the educational area to which the subject taught by the respondent belongs and the educational sector to which the subject taught by the respondent belongs. The second part of the questionnaire consisted of five questions in which respondents were asked to self-assess self-confidence in the use of digital technologies (question number five), information about the use of virtual reality technology (question number six), about the readiness to use virtual reality technology (question number seven), attitude about the positive effect of virtual reality technology on student learning (question number eight) and information about participation in workshops (education) where the respondent encountered virtual reality technology (question number nine). In the third part of the questionnaire, teachers evaluated the support of the environment for working with virtual reality technology in the classroom based on the six statements offered. The teachers evaluated each statement on a 5-point Likert-type scale (from 1 – completely agree to 5 – completely disagree). The reliability coefficients of the questionnaire scale were determined using the Chronbach's alpha method. The scale had reliability coefficients above 0.91, which according to (Nunnally and Bernstein, 1994) is an acceptable coefficient, and the scales are considered extremely reliable and appropriate for this type of research. For the data collection method, an electronic (online) survey questionnaire created using Google form, a popular Google service for creating surveys and questionnaires, was used. Respondents entered their answers independently. At the end of the survey, all answers were taken and further statistically processed. In the processing of data from the survey questionnaires, descriptive statistics were used to obtain basic statistical indicators: arithmetic mean (AS), standard deviation (SD), flatness of distribution (KURT) and skewness of distribution (SKEW). Frequencies of individual responses were calculated for all qualitative variables. To determine statistically significant differences in the variables with regard to the type of school, with regard to the level of self-confidence in the use of digital technologies and with regard to the gender of the test participants, the Mann-Whitney U test was applied. Spearman's correlation coefficient was calculated to determine the relationship between the user's attitude about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning. The statistical significance of the differences was tested at the significance level of  $p < 0.05$ . Data processing was performed with the program STATISTICA version 14.0.0.15., TIBCO Software Inc.

#### **4. RESEARCH RESULTS**

The first question in the second set of questions asked respondents to rate their level of confidence in using digital technologies. 77.04% of the respondents have a very high and high level of self-confidence, and 22.96% of the respondents neither have, nor do they have a low or very low level of self-confidence when using digital technologies. Only 30.37% of respondents have used virtual reality technology so far, and 69.63% of them have had no contact with this technology. Compared to the small number of teachers who have worked with virtual reality technology so far, a much larger number of teachers would work with this technology if given the opportunity. 85.19% of them stated that they would be willing to use virtual reality technology in their classroom if given the opportunity. A very close percentage of teachers, 70.23% of them, believe that the use of virtual reality technology would have a positive effect on student learning overall. The results of measuring the number of teachers who attended workshops (education) where they had the opportunity to encounter virtual reality technology, show that only 28.89% of the 135 participants of this research had this opportunity.

The results presented in Table 3 show the descriptive statistics of the third set of questions that measured the support of the environment for working with virtual reality technology in class. It is evident from the results that the results of the attitudes of the test participants for all six variables that examined the support of the environment for working with virtual reality technology in classes are relatively high. Respondents mostly agreed with the statement that their school would support them in working with virtual reality technology in class (AS=3.86). A relatively large percentage of respondents think that the school would be ready to provide training for work in virtual reality technology (AS=3.79). The fewest respondents agreed with the statement that their colleagues would look positively on the use of new technology in the educational process (AS=3.42).

*Table 3: Results of the descriptive analysis of the survey questionnaire*

Variables	AS±SD	Skewness	Kurtosis
The school would support me in working with virtual reality technology in class	3,86±1,04	-1,14	1,34
Parents would support working with virtual reality technology in class	3,52±0,86	-0,64	1,20
The school would be ready to provide funds for the purchase of equipment for virtual reality technology	3,50±0,96	-0,42	0,21
The school would be ready to provide me with an education for work in virtual reality technology	3,79±1,01	-1,02	1,14
After completing the education, I would be ready to use virtual reality technology in class	3,77±1,04	-1,23	1,40
My colleagues would look positively on the use of new technology in the educational process	3,42±0,93	-0,31	0,29

*AS=arithmetic mean; SD= standard deviation; SKEWNESS=distribution asymmetry;  
KURTOSIS=skewed distribution;*

The first problem of the research was to examine the relationship between the attitude of users about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning. In Table 4, Sperman's coefficient shows that there is a strong correlation (value greater than 0.5) between the two variables.

*Table 4: Results of the Sperman correlation coefficient between the variables of the survey questionnaire*

Variables	Do you think that the use of virtual reality technology would have an overall positive effect on student learning?
Would you be willing to use virtual reality technology in your classroom if given the chance?	0,56

The second research problem was to examine the relationship between the use of virtual reality technology and attendance at workshops (education) where they were exposed to this technology. In Table 5, the Sperman coefficient shows that there is a strong correlation (value greater than 0.5) between the two variables.

*Table 5: Results of the Sperman correlation coefficient between the variables of the survey questionnaire*

Variables	Have you attended any workshops (education) where you encountered virtual reality technology?
	0,61

The third research problem was to examine the difference in the use and willingness to use virtual reality technology according to the level of self-confidence of the test users in the use of digital technologies. The results of the Mann-Whitney U test between the variables of the survey questionnaire according to the level of self-confidence of test users in the use of digital technologies are shown in Table 6. It was expected that there would be differences in the use and willingness to use virtual reality technology between users who have a high level of self-confidence in the use of digital technologies. technology compared to those who have a low level of self-confidence. The Mann-Whitney U test did not confirm the differences.

*Table 6: Mann-Whitney U test between the variables of the questionnaire according to the level of self-confidence in the use of digital technologies.*

Variables	Sum of ranks High and very high level of self-confidence N=104	Sum of ranks Low and very low self- confidence N=31	U	Z	p
Have you ever used virtual reality technology?	6706,50	2473,50	1246,50	-1,91	0,06
Would you be willing to use virtual reality technology in your classroom if given the chance?	6909,50	2270,50	1449,50	-0,85	0,40

*Rank Sum= sum of ranks; Z= z-value; U= u-value; p = p value*

## 5. DISCUSSION

The results of the research showed that there is a strong correlation between the attitude of users about the desire to use virtual reality technology in their work and the attitude that the use of virtual reality technology would have a positive effect on student learning. According to the research results, the first hypothesis can be accepted. The research showed that teachers in secondary schools who participated in this research connect the desire to use virtual reality technology in their work and the perception of its usefulness for the students they teach. On a sample of 623 teachers, Antón-Sancho, Fernández-Arias and Vergara (2022) confirm that teachers recognize that virtual reality has a high didactic potential. The didactic potential of virtual reality technology is confirmed by Fernández-Arias, Antón-Sancho, Sánchez-Jiménez and Vergara (2023) and in another study on a sample of 606 teachers. It is obvious that secondary school teachers, who participated in the research, closely associate their desire to integrate virtual reality technology into their classes with their own perception of the usefulness of the technology for the students they teach. The results of the research also showed that there is a strong correlation between the use of virtual reality technology and attending workshops (education) where they encountered this technology.



According to the research results, another hypothesis can be accepted. This connection suggests that education is a key factor in shaping teachers' positive attitudes and willingness to implement virtual reality technology in their teaching practices. This confirms the importance of continuous professional development as a driver of innovation in education, contributing to a better understanding and application of modern technological tools. The research results did not confirm differences in the use and willingness to use virtual reality technology according to the level of self-confidence of the participants in the use of digital technologies. According to the research results, the third hypothesis cannot be accepted. This suggests that respondents' confidence in using digital technologies does not play a key role in shaping their willingness to introduce virtual reality technology in an educational context. In other words, despite the variation in self-confidence in the use of digital technologies, the level of readiness to integrate virtual reality technology among the test participants is not statistically significantly different. Despite this, the research did not identify significant differences in willingness to use virtual reality technology according to the level of confidence in working with digital technologies. This finding indicates that, although self-confidence is an important aspect of digital competence, it is not crucial for teachers' readiness to introduce virtual reality technology into educational processes. Ultimately, these conclusions provide useful guidelines for the development of support and training programs that should aim to promote a positive attitude, provide relevant educational opportunities, and understand the specificity of factors that influence teachers' willingness to integrate virtual reality technology into their teaching. Most of the surveyed teachers have a high level of self-confidence in the use of digital technologies, which shows the wide presence of skills necessary to work with digital tools in the teaching environment. Despite the fact that a smaller number of teachers have previous experience with virtual reality technology, a high percentage expresses readiness for its integration into teaching. This indicates an openness to innovation despite the lack of previous experience. A significant number of teachers positively assess the potential benefit of virtual reality technology for student learning, which confirms the recognition of the pedagogical advantages of this technology in the educational process. A small number of teachers in education and workshops with virtual reality technology and there is clearly a need to expand education and training to support the wider implementation of the technology in the education system. Respondents express high confidence in the support of their schools in working with virtual reality technology, while there is less agreement regarding the support of colleagues. Such results indicate the importance of strengthening mutual cooperation and sharing experiences among teachers.

## **6. CONCLUSION**

Based on the obtained results, it can be concluded that there is a clear connection between the positive attitude of teachers towards the use of virtual reality technology in work and the belief that such application would have a positive effect on student learning. This connection highlights the importance of promoting a positive attitude towards innovative technologies among teachers in order to encourage their integration into the educational process. Also, the research points to the significant role of education in shaping the readiness of teachers to use virtual reality technology. Participation in workshops or education dedicated to this technology correlates positively with actual application in the teaching environment. Therefore, additional investment in educational programs is recommended to support the successful integration of virtual reality technology into school practices. These conclusions provide guidelines for further development strategies aimed at supporting teachers in introducing virtual reality technology into the educational process, with an emphasis on strengthening collaboration within the school community.

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## IMPACT OF A PANDEMIC ON SUSTAINABLE DEVELOPMENT AND EFFICIENCY OF SLOVAK LONG-TERM CARE INSTITUTIONS

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### ABSTRACT

*The main motivation for analyzing technical efficiency of long-term care facilities in Slovakia was to understand the issues they are dealing with in their provision of quality care under the impact of the pandemic. Due to the lack of studies dealing with the subject, we present a comprised understanding of the state of the Slovak long-term health and social care market followed by an analysis selected facilities based on data envelopment methodology and Malmquist model. An input-oriented model was used integrating quality-based outputs based on results of a literature review. Our findings show increases in technological change which outweigh the decreases in technical efficiency during the pandemic. Detailed analysis however uncovers a more complex picture of a sector in critical state. While larger and well managed facilities prosper, overall decrease in efficiency in provided care and challenges posed by already struggling facilities pose a threat to the sustainable development at organizational level. The situation could most likely be addressed by individual quality management actions and systemic long-term care strategy implementation by the government.*

**Keywords:** long-term care, institutional care, technical efficiency, data envelopment analysis, Malmquist model

### 1. INTRODUCTION

The Slovak health and social care systems have undergone partial changes to accommodate the growing need for the increasingly aging population of Slovakia since the postulation of a national framework which established a strategy in the field of long-term care (Ministry of Health, 2004). Slovakia's – as the world's population – is aging. Demographic, economic, social, technological developments are reshaping its population and shifting the focus toward the elderly. The overall population of the world more than tripled since 1950 from 2.5 billion to the current number of over 7.8 billion (United Nations, 2022), affecting mostly developing low and middle income countries. While Europe, North America and Japan slide towards the final stages of the demographic transition, the developing countries will face much unprecedented dramatic change in their population age structures over the upcoming years when life expectancy increases and birth rates become delayed or fall down over time (Roser, 2023). Efficiency of Slovak health care system – since its first complex analysis by Filko et al. (2012) has been regarded as a stagnant one, belonging into the cluster of the worst performing developed countries. Little has changed in the years since then. While the OECD Economic Survey (2017) informed of a poor efficiency regarding quality of primary care, increasing shortages of nurses and upcoming large numbers of retiring physicians but also overall low health outcomes and slow progress, the newest report (OECD, 2022) focuses especially on the rapid population aging with more than doubled ratio of retirees to working-age population in

the upcoming 30 years. Expected pressure on fiscal expenditures calls for an overhaul of pension, labor market, health and long-term care reforms. Also cost efficiency of the health care sector remains a milestone out of reach, with need for better management, operation and financing of inpatient care units and hospitals.

## **2. DEVELOPMENT OF LONG-TERM CARE IN SLOVAKIA**

While not a single common definition for long-term care exists, there are several aspects which may be distilled from individual definitions by different authorities. Novotná (2004) defines long-term care as administering required combination of care, assurance, nursing care, social and health consulting, support services for patient's integration and other services, compensations and financial aids in a scope which substitutes or diminishes the lost of the capability to perform activities of daily living and other social and work functions, which take at least 6 months or there is a probability, that the state will last for at least 6 months. This definition lies in stark contrast with the definition for long-term care of Tatár (2004, in: Ministry of Health, 2004), which rather vaguely states it as a "system which integrates social and health care for people with long-term health impediments and for older people with long-term health problems". Tatár (2004) is clearly inspired by the WHO definition (p. 228): "[The goal of long-term care] is to ensure that an individual who is not fully capable of long-term self-care can maintain the best possible quality of life, with the greatest possible degree of independence, autonomy, participation, personal fulfillment and human dignity", while the OECD (2006) clearly distinguishes long-term care from health care as such as it does not primarily focus on changing a health condition (from unwell to well) but merely aims at making the current condition (unwell) more bearable. Previous concept in place within Slovak legal framework was the Legislative Aim of the Long-Term Care and Integration of People with Disabilities Act (Ministry of Health, 2005) based mostly on the Concept for Social and Long-Term Care (Ministry of Health, 2004), which due to political quarrels between the Ministries of Work, Social Affairs and Family and the Ministry of Health has never been enacted as a final law. Individual ministries should have implemented partial incremental changes within their areas, however these never made it to fruition. Still, during this period a new national plan working group was instituted as part of the national project Long-Term Care Strategy which was realized as part of the pilot scheme of participative creation of public policies (Operating Program Effective Public Administration) under the umbrella of Governmental Deputy for the Development of Civic Society and Subjects of Public Administration together with Ministry of Health and Ministry of Work, Social Affairs and Family. Due to the lack in co-operation between the involved Ministries, the constantly changing context of the planned legislative changes while preparing even the introductory materials, the Action Plan for Implementation of the Long-Term Care Strategy could not have been worked on according to the working group's report (AOPP, 2019). The result was nevertheless presented in Summer 2021 as a strategic aim of the individual ministries (Ministry of Labour, Social Affairs and Family, 2021) under the name Strategy for Long-Term Care in Slovak Republic: Integrated Socio-Medical Care. Current trend of the individual ministries is to implement partial changes (e.g. in the latest update Act No. 213/2021 Z.z. of the Health Care Act No. 576/2004 Z.z.) as they solely mean to keep the system from falling apart and buying time for state actors, instead of improving the situation as such. This fragmentation of systemic services provided and financing leads to difficulties in access, especially distinguishing between the services, which again may lead to duplicate or redundant provision and hamper efficient financing (Joshua, 2017). The lack of a specific legal implementation directed solely towards the long-term care sector leaves individual businesses and organizations providing care within the system working with multilateral demands and divided responsibilities.

The comprehensive set of needs and evaluation criteria regarding quality of the individual care are based on their own priorities, existing practices, values and assumptions. A systematic approach for analyzing the state of their provisions, identifying outliers and ineffective deficiencies would help bring forth an improvement to their stability and economic sustainability.

## **2.1. Sustainable Development of Long-Term Care Organizations**

Sustainability has been a driving force and strongly in focus for institutions and organizations more than ever before since the adoption of United Nations General Assembly's (2015) Sustainable Development Goals and their further implementation on national level. The use of sustainability indicators enables managers to formulate strategies, establish improvement goals, and track progress, as well as benchmark against other systems and organizations. The health care systems have to comply with strategies leading to efficient resource management, cost-effectiveness and continuous improvement of their services (Mehra & Sharma 2021). Economic sustainability (in respect to environmental and social areas) is mostly concerned with aspects of cost savings, profits, research, and development. On a state level, most researchers have so far concentrated on financial self-sufficiency of public health care programs. On a micro-economic level over 80 % of companies, reflect sustainability within their mindsets while most of the driving forces and expected results within sustainability measures are increased business efficiency, better performance measurement and lower costs (Čabinová et al. 2019). The accelerated population's aging predictions according to the European Commission (2020) with Slovakia's age cohorts above 80 years old soaring from 3.4% in 2019 to 14.7% in 2070, rendering it one of the fastest in the EU, will demand a well set-up system of (informal) home care and improved quality of institutional care, which is currently largely perceived as sub-standard (OECD, 2017). This correlates with national over-average numbers for preventable diseases based on behavioral risk factors, low screening rates and low vaccination coverage when compared to EU average (OECD, 2019). The state's lackluster attitude towards institutional care is thus being mirrored by managerial practices at organizational level. Operational reaction to the COVID virus during the pandemic within long-term care institutions which house a population more likely to develop a severe illness and with a higher mortality rate, have been a prime example of an impulse to rethink regulations and setup new sustainability processes. Managerial activities and leadership, professional training and education, quality evaluation based on outcomes, and project cost management are considered critical building blocks of health care managers (Dias et al. 2020). These reflect heavily the aforementioned strategies towards sustainable business development. Strategic adoptions of improved managerial practices have proven to save residents lives during the pandemic and may be build upon further within the post-COVID period. Our paper builds upon these findings in further selection of methodology and individual inputs and outputs within the selected model.

## **3. METHODOLOGY**

One of the most frequently used method for measuring efficiency within the health care sector is the Data Envelopment Analysis (DEA). Originally developed by Charnes, Cooper, and Rhodes (1978), DEA has been used widely by researchers to compare individual DMUs with each other in a variety of fields. While arriving from manufacturing and planning, it spread to educational organizations (schools, universities), health care (hospitals, clinics), agricultural production, banking services and many more. It builds upon the work of Farrell (1957), who focused on single input over single output technical efficiency estimation. While using linear programming optimization, which is a mathematical method to reach the best outcome for a linear objective function subjected to equality and inequality constraints, it estimates efficiency and establishes ranking of DMUs using multiple inputs over multiple outputs.

As described by Banker, Charnes, Cooper, Swarts, and Thomes (1989) the method is sensitive to amount of variables used in regards to the size of the data set. It has been suggested, as a general rule, to ensure that the number of DMUs should be at least three times the sum of used inputs and outputs categories. The explanation is based on the calculation of effectiveness: as new variables are added to the research question while number of DMUs remains same, their efficiency scores from previous iterations may increase but not decrease.

The input-oriented BCC model is presented as follows:

$$\begin{aligned} \min h &= h(X_0, Y_0) \\ \text{subject to } hX_0 - \sum_{j=1}^n \lambda_j X_j &\geq 0, \sum_{j=1}^n \lambda_j Y_j \geq Y_0, \sum_{j=1}^n \lambda_j = 1, \lambda_j \geq 0, j = 1, \dots, n \end{aligned} \quad (1)$$

This relies on the fact that  $h \geq 0$  will be satisfied when the components of every  $X_j$  and  $Y_j$  are all non-negative. The duality of this linear programming problem can be formulated as:

$$\begin{aligned} \max \sum_{r=1}^s u_r y_{r0} - u_0 \\ \text{subject to } \sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} - u_0 \leq 0 \end{aligned} \quad (2)$$

$$\sum_{i=1}^m v_i x_{i0} = 1, u_r, v_i \geq 0 \quad (3)$$

The effective DMUs (value of  $h(X_0, Y_0)$  is = 1) are considered lying on a production possibility frontier – a description of optimum use of technical efficiency, technological progress and productivity growth. Technical efficiency refers to the ability to use a minimal amount of given input to result in production of given output. All DMUs lying below the production possibility frontier are deemed technically inefficient (value of  $h(X_0, Y_0)$  is < 1). Throughout time with technological change the production functions may alter the way how inputs are transformed into outputs. These changes enlarge the frontier and shift it. Thus improvements in efficiency may be gained by technical improvements and/or technological innovations. The Malmquist input-orientated productivity index may be used to derive the change and its split between technical and technological change. Proposed by Malmquist it is a non-parametric DEA model based on their productivity index research method. We propose input orientation of the model due to the fact of later focusing on outputs signifying low quality results, which are not to be encouraged. Also the state focuses its welfare policies on adjusting the inputs rather than measuring and controlling the outputs; the emphasis is placed rather on the reduction of the inputs which lead to these outputs. Following Färe, Grosskopf and Lovell (1994), the input-based Malmquist productivity change index may be formulated as:

$$M_I^{t+1}(y^{t+1}, x^{t+1}, y^t, x^t) = \left[ \frac{D_I^t(y^{t+1}, x^{t+1})}{D_I^t(y^t, x^t)} \times \frac{D_I^{t+1}(y^{t+1}, x^{t+1})}{D_I^{t+1}(y^t, x^t)} \right]^{1/2} \quad (4)$$

where the  $I$  indicates an input-orientation,  $M$  is the productivity of the most recent production point  $(x^{t+1}, y^{t+1})$  (using period  $t + 1$  technology) relative to the earlier production point  $(x^t, y^t)$  (using period  $t$  technology),  $D$  are input distance functions, while  $y$  is the level of output that can be produced using a given level of input  $x$ .

A value greater than unity will indicate positive total factor productivity growth between the two periods. Following Färe, Grosskopf, Lindgren and Roos (1993) an equivalent way of writing this index is:

$$M_I^{t+1}(y^{t+1}, x^{t+1}, y^t, x^t) = \frac{D_I^{t+1}(y^{t+1}, x^{t+1})}{D_I^t(y^t, x^t)} \left[ \frac{D_I^t(y^{t+1}, x^{t+1})}{D_I^{t+1}(y^{t+1}, x^{t+1})} \times \frac{D_I^t(y^t, x^t)}{D_I^{t+1}(y^t, x^t)} \right]^{1/2} \quad (5)$$

Or

$$M = E \cdot P \quad (6)$$

Where

$$E = \frac{D_I^{t+1}(y^{t+1}, x^{t+1})}{D_I^t(y^t, x^t)} \quad (7)$$

$$P = \left[ \frac{D_I^t(y^{t+1}, x^{t+1})}{D_I^{t+1}(y^{t+1}, x^{t+1})} \times \frac{D_I^t(y^t, x^t)}{D_I^{t+1}(y^t, x^t)} \right]^{1/2}$$

where M (the Malmquist total factor productivity index) is the product of a measure of technical progress P (the two ratios in the square bracket) as measured by shifts in the frontier measured at period  $t + 1$  and period  $t$  (averaged geometrically) and a change in efficiency E over the same period (the term outside the square bracket).

### 3.1. DEA Methodology in Health Care

While some countries are trying to increase competition through activity-based funding schemes and implementation of higher provider choice, the development of efficiency measures and performance indicators have always been considered a prime. These key numbers are being used not only to internally characterize the market, the individual sections and actors within but also provide the public with a possibility to decide which providers to choose. Indicators provide a base for this comparison as they normalize the amount and quality of information between individual service providers and thus help to identify the tops and bottoms of the efficiency hierarchy. From the position of a state owned perspective the highest performers may be provided with increased funding and more freedom within their decisions in the market, while the least performing providers may be subjected to a stricter routine in observation, inspection and direction from the owner's side. Hollingsworth (2003, 2008), Pelone et al. (2015) and Kohl et al. (2019) have all conducted large scale review studies regarding the measurement of efficiency and productivity and use of DEA within the health care sector aimed at comparing methodological frameworks, focus areas, inputs and outputs used, even producing some conclusions regarding their results. DEA is considered the mostly used tool in these studies. Almost half of the studies (48 %) examined by Hollingsworth (2008) are pure DEA implementations and further 19 % use DEA in combination or some other form of regression analysis. Malmquist studies (dynamic DEA method comparing efficiency scores in time) account for another 8 % of studies.

Kohl et al. (2019) establishes that while almost all studies in their selection used DEA, 48 % of these publications also used a newer method or were used to develop and test newer applications (e.g. to use the Malmquist Index in fuzzy environments or to compare traditional DEA with other applications to highlight the effects of individual drivers within the used measures).

#### 4. OBJECT OF RESEARCH

The purpose of our research is to assess and evaluate the efficiency of individual long-term care organizations in regards to their performance during the pandemic. We have decided to apply the input-oriented Malmquist model, based on the individual DEA analysis of the DMUs within three years (2019-2021). The selected DMUs have all proven to provide necessary data which is also collected by the Statistical Office of Slovak Republic.

##### 4.1. Data Specification

Criticism regarding the DEA method, frequently due to its non-parametric nature, focuses on the selection of correct inputs and outputs and proper selection of the model used. Using a literature review analysis we have come up with individual inputs and outputs which reflect the quality-related outputs of the long-term care system: mortality or survival rates (mostly preventable) during the pandemic have soared. While maintaining the number of treated patients we focus on examining the decrease of inputs, which these outputs may have been nevertheless experienced with (Czypionka et al. 2014, Nayar & Ozcan 2008, Wu et al. 2013). When regarding unwanted outputs and their limits the input oriented model is recommended. It calculates the possibility of minimizing inputs when dealing with stated mortality rates as incidents during the selected period (2019-2021). Most commonly used inputs and proxy-inputs in health care (Hollingsworth, 2008) were selected to describe not only the size or capacity of each long-term care DMU (Input 1), but also their financial possibilities expressed as their yearly revenue (Input 2), which stand as a proxy for technological potential of the facility and its overall financial performance, also substituting managerial decisions and strategy. Number of employees (Input 3) features as expression of the quality and quantity of medical and support staff (see *Table 5*).

Label	Variable	Definition
Input 1	Number of beds	Total capacity of beds in the facility during the year
Input 2	Revenue	Total disposable revenue per year in euros in the year
Input 3	Number of employees	Average number of employees within the year
Output 1	Number of patients	Social care recipients within the year
Output 2	Mortality Rate	Number of dead recipients within the year

*Table 5: Definitions of Inputs and Outputs*  
(Source: Prepared by authors)

Outputs were selected to reflect quality of provided services of a long-term care facility: number of patients (Output 1) stands for overall effectiveness of the DMU. The mortality rate expressed in number of patients dying within a year (Output 2) represent unwanted or at least undesired results of a DMU, which may have been prevented by higher quality care, better technological utilities, proper and timely treatment provision, or prevention measures during the COVID period. The descriptive statistical overview of the values of the variables used (see *Table 6*) provides a very broad picture of the Slovak landscape of long-term care facilities. In observations – while 50 institutional facilities out of 664 social care homes and elderly homes (AOPP 2019) provided individually diverse reports from years 2019 till 2021, only 15 were –



after screening the results – eligible for the inclusion in this research mostly due to missing data from one of the years under examination (new facilities or closed ones) and incorrect data (large-scale mixed-service institutions do not report numbers for individual relevant departments but rather incorrectly aggregated numbers).

Label	Variable	Observations	Mean	Standard Deviation	Min	Max
Input 1	Number of beds	15	53.48	45.46	12	188
Input 2	Revenue	15	734 062	616 995.02	144 888	2 535 477
Input 3	Number of employees	15	32.66	25.07	6	102
Output 1	Number of patients	15	49.20	42.06	12	186
Output 2	Mortality rate	15	16.44	14.50	1	60

*Table 6: Statistical Description of Inputs and Outputs*  
(Source: Prepared by authors)

The difference in their size is radical – ranging from small facilities with 6 employees to a mean of over 33, which is five times the size, reflected also in the number of patients serviced within a year. Same with possibilities regarding revenue and their use of potential when looking at accessible funds for their operation. These differences in size reflect regional distribution (urban vs. rural) but also specialized care versus complex facilities where these long-term care units are mostly only parts of overall provided services. Yearly comparisons of the data (see *Table 7*) reveals that while the mean capacity of the DMUs have remained almost the same (98 % in 2020 and 2021 when regarding the previous year), the revenues have risen by approx. 10 % per year in average. This is only marginally connected to an increase in employee numbers (small rise in 2020 while 2021 staying flat).

Label	Variable	2019	2020	2021
Input 1	Number of beds	56.33	55.40	54.67
Input 2	Revenue	687 746.00	773 544.53	840 981.40
Input 3	Number of employees	33.14	34.67	34.60
Output 1	Number of patients	54.94	50.14	48.80
Output 2	Mortality rate	13.07	17.67	18.80

*Table 7: Input and Output Means - Yearly Comparison*  
(Source: Prepared by authors)

The pandemic in 2020 and 2021 has taken its toll on the overall performance of the organizations. Number of treated patients decreased mostly due to corresponding increases in mortality rates, which rose especially in 2020 by more than a third and followed with another almost 6% increase in 2021 due to high risk cohort patients being treated at these facilities, while also potential new patients have most probably rather opted to isolate and stay at home or in informal care by their families and not take up the opportunity to fill-in empty beds in these institutional care units. The software DEAP 2.1 (University of New England, Armidale, Australia) was used to calculate the values of technical efficiency as well as total factor productivity index.

## 4.2. Results

After discussing individual inputs and outputs and their development over time we calculated the technical efficiency of individual organizations within the reported years using the Malmquist input-oriented model (see *Table 8*).

DMU	Efficiency change	Technical change	Pure technical efficiency	Scale efficiency	Total factor productivity change
1	0.923	1.123	0.951	0.970	1.036
2	1.000	1.028	1.000	1.000	1.028
3	1.000	1.044	1.000	1.000	1.044
4	0.936	1.072	0.955	0.980	1.004
5	1.024	1.055	1.000	1.024	1.080
6	0.911	1.053	1.009	0.903	0.959
7	0.947	1.032	0.949	0.998	0.977
8	1.016	1.009	1.016	1.000	1.025
9	1.003	1.048	0.991	1.012	1.052
10	0.918	1.063	0.924	0.994	0.977
11	0.989	1.011	1.000	0.989	1.000
12	1.028	1.114	1.027	1.001	1.145
13	1.000	0.994	1.000	1.000	0.994
14	1.000	1.037	1.000	1.000	1.037
15	0.946	1.061	0.949	0.997	1.004
Mean	0.975	1.049	0.984	0.911	1.023

*Table 8: Malmquist Index Summary of Firm Means  
(Source: Prepared by authors)*

From 2019 to 2021 the total factor productivity increased by 2.3% among which the technical change decreased by 2.5% and efficiency change increased by 4.9%. During the period of 2019 till 2021, 10 DMUs (67%) had their total factor productivity greater than 1, indicating growth in their productivity, while 4 DMUs (27%) scores decreasing thus indicating a deterioration in their total factor productivity and 1 DMU remaining flat with no increase or decrease. Table 5 presents the results based on changes within individual years. While the first pandemic year (2020) has signified an overall increase in total factor productivity by 4.1% the next year this trend stopped (increase by just a mere 0.6%). This increase in factor productivity within the second year is led by a strong technical change (increased by 7.5%) while the efficiency change is negative (decrease by 3.2%). Similar developments may be seen in the third year though in less remarkable aptitude (technical change increasing by 2.4% and efficiency change decreasing again but just by 1.7%).

Year	Efficiency change	Technical change	Pure technical efficiency	Scale efficiency	Total factor productivity change
2	0.968	1.075	0.969	0.999	1.041
3	0.983	1.024	1.000	0.982	1.006
Mean	0.975	1.049	0.984	0.991	1.023

*Table 9: Malmquist Index Summary of Annual Means  
(Source: Prepared by authors)*

## 5. DISCUSSION

The Malmquist Index Model measures the dynamic efficiency of the DMUs over multiple periods. Three issues may be regarded in this computation: first the measurement of productivity change over the period, second is the decomposition of this development into what may be described as “catching-up” effect (efficiency change) and previously mentioned

“frontier shift” (technical or technological change). The efficiency change is further divided to identify the main source of improvement (or decline) via either developments in pure technical efficiency or the use of scale efficiency. The mean results have already established that the main increase in overall productivity in the pandemic years has arrived from the technological change and not from the efficiency increase. When regarding the inputs this change is seen based especially in larger budgets for individual institutions and slight increases in staff numbers. In addition, while these influxes of fiscal resources into the sector have meant better options regarding keeping outputs at respectable levels, the productivity efficiency is declining. Scale efficiency seems to be becoming a problem however, while the means are obscuring the individual results: just one DMU (6) has drastically declined by almost 10% while most others have slight decreases up to max. 3% or less, or even limited increases in scale efficiency. On the other hand, pure technical efficiency has decreased by 2.6% on average and fairly reflects the distribution of individual DMUs – one third of which report declines, the main core oscillating around their previous state and just three units (6, 8 and 12) delivering minimal increases. The unexpected arrival of the pandemic seems to have eaten up potential for further improvements within individual efficiency initiatives and continuous improvement programs – leading to stagnation within these years in regards of quality. The lack of new incoming patients to fill up the vacant beds may have also contributed to this trend. From a separate DEA analysis of all included DMUs, distances a trend of declining in several units over time of these three years may be noticed. While almost a third of the organizations managed to brace for the first wave of the COVID epidemic and climb back up to their pre-COVID efficiency, a large number of DMUs struggled even further, their efficiency declining even further. A positive outsider seems to be DMU 12, which quality-wise has managed to push the mortality rate during the 2020 year to a minimum and it only reached pre-pandemic levels in the following year. It is also mirrored in the Malmquist model with over 14.5% total productivity index change being the best performing unit. The fact this being a sole high performer leads to a conclusion of improved quality measures contributing to more sustainable development due to managerial decisions at that single facility. Overall neglect of the state’s unified setup of the long-term care system however may have contributed to the stagnation and decline of majority of institutions. Yearly comparison of individual DMUs delivers also the understanding of under-performing facilities. All institutions, which started as inefficient, declined even further in the second and third year. While slowing down their decrease in efficiency, they indicate a critically negative trend, which may lead to further deterioration and may be pointing towards underlying issues within the system as such.

## 6. CONCLUSION

Within the context of our arrival in the post-COVID era – which may provide learning opportunities for individuals, organization but also the state – we have analyzed and evaluated the efficiency of selected decision-making units in the long-term care sector of Slovakia prior and during the pandemic. Applied DEA and Malmquist methods using an input-oriented model have provided us with relevant results describing individual estimated efficiencies. While overall total factor productivity change delivered a marginally positive result, the underlying findings uncover a variety of issues, which hamper further improvements, and sustainable development of the sector. The technological progress is the leading contributor towards higher productivity and increased financial resources fuel its further development. However the increased budgets and needed finances have not been fully translated into new staffing positions or potential efficacy increases. Furthermore, only stable institutions within the sector with enough managerial prowess seems to have the needed know-how and experience as how to handle such emergency situations as a pandemic. Large-scale facilities seem to be better equipped to maintain their status quo or return to their pre-pandemic effectiveness.

However, size is not all as also couple smaller facilities have proven to be highly efficient. Still, ineffective transformation of larger potentials within the sector leads to an understanding of misalignment of the financing system and results delivered by the long-term care system in general. The unwillingness or inability to invest in higher number of physicians, nurses, and other professional staff members seem to reflect the uncovered stagnation during the pandemic but may also be partially due to missing health care workers on the Slovak labor market. Special care has to be provided to declining care providers in regard of effectiveness. Quality standards should be imposed coupled with further quality indicators and dedicated performance measurement system implementation, which should stop their further fall. Inefficient organizations would need to establish proper managerial practices to strengthen their financial stability, personnel utilization and thus lead to quality increases in the care provided. Further study would be needed to evaluate the impact of lessons learned during the pandemic up till current day. To provide high quality care, reflect the needs of the upcoming demographic change on national level, and secure economic stability of the long-term care sector, sustainable developments on national but also organizational level have to be established and maintained. As derived from our findings, these seem currently to be put on hold by the impact of the pandemic negatively supported by the fragmented nature of the long-term care sector as such.

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## ANALYSIS OF EFFECTIVE CRISIS MANAGEMENT IN PUBLIC AND PRIVATE SECTOR COMPANIES OF THE REPUBLIC OF CROATIA

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### ABSTRACT

*Today, business is faced with numerous crisis situations that create problems in the business of public and private companies. The fundamental problem that arises then is not only the fact that most of these events cannot be predicted, but also the inability to deal with new situations as a result of the lack of knowledge about crisis management, that is knowledge about crisis management. Due to the increased occurrence of various types of crises and disasters in modern society, the only way to mitigate their negative effect is to know and introduce crisis management. Through this research, on a sample of 154 public and private sector companies, it was concluded that crisis management is very little represented within Croatian public and private sector companies. All have the same set of values by strengthening social responsibility, ethnic norms of behavior through a strong organizational culture, and the desire to establish high requirements for professionalism. Public and private companies face the same challenges in the market and, depending on the type of business, face similar crises. The results of the research showed that companies in Croatia do not use crisis management instruments and methods to a sufficient extent, and it can be concluded that they are not sufficiently prepared for the occurrence of a possible business crisis.*

**Keywords:** *public and private sector, crisis management, business crisis*

### 1. INTRODUCTION

Throughout practice and history, there are no companies that have not encountered some kind of business crisis in the pursuit of their business goals. Crises, in general, and especially corporate crises, have become an almost normal part of our everyday life. We are witnessing the collapse of many companies, scandals and bad management, regardless of the sector they belong to. The situation is sad and difficult, no matter what kind of companies it is, micro, small, medium, or large, private or public. There are many examples of companies, with or without long-standing traditions, that have fallen into crisis. In managerial literature and practice, crisis management is a special form of company management of the highest priority, whose task is to avoid or overcome all those processes that threaten the goals, that is, the survival of companies. Clear symptoms or indicators that point to problems in the business are often ignored. Often companies without a permanent crisis management system, only when they fall into a business crisis are the causes sought and attempts are made to save the business and existence of the company. Being ready to recognize and notice crisis symptoms facilitates all other activities of company management. Understanding the appearance of the first symptoms of a business crisis and spotting them in time enables more successful company operations. Spotting problems in business can be done by monitoring a whole series of different information from individual areas of business. The symptoms of a crisis are the characteristics by which the existence of a company crisis can be recognized. If the courses of typical company crises are analyzed, then one can come to the knowledge that the collapse of the company starts slowly at first, and then in the further course the crisis gets stronger and stronger.

The more obvious the crisis situation, the clearer its signs. Therefore, the aim of the paper is to draw attention to the importance of the establishment (timely organization) of crisis management, before the emergence of a business crisis, in public and private sector companies in order to ensure the long-term stability of the company's operations.

## **2. THE IMPORTANCE OF CRISIS MANAGEMENT FOR PUBLIC AND PRIVATE SECTOR COMPANIES**

### **2.1. The concept and significance of cross-management**

Management usually describes the leadership in an organizational unit and the tasks and processes related to the ongoing activities of the organization. Individually it includes planning, organizing, implementation and control. The only thing that distinguishes one company from another is the quality of its management at all levels. Management represents a key function in the company. He is responsible for the success of the entire business, the vision, the mission and the execution of the highest goals of the company. Therefore, strategic planning involves the application of management techniques that help organizations define long-term goals to achieve stable growth in the market. Strategic planning includes the development of strategic plans taking into account the risks and opportunities faced by companies (Vinšalek Stipić and Ružić, 2021). Today, the crisis takes many forms, and its management requires not only conventional wisdom, but also specific skills and actions. Crisis management has become a recognized discipline. The field of crisis management is an area of growing interest as many managers now realize that their companies are not immune to sudden unexpected events that can significantly threaten the overall business. It is not questionable whether there will be a crisis, but when and what kind of crisis. Therefore, the necessity of establishing crisis management is not in doubt. Crisis management consists of activities that include response to crisis events and recovery efforts, readiness for the occurrence of future crisis events. Crisis management occurs in the context of management, strategic management and corporate management (Kružić, 2015). Crisis management represents a set of functions or processes whose goal is to identify, study and predict possible crisis situations and to establish the necessary ways that will enable the organization to prevent a crisis or an effective reaction and its successful resolution while minimizing its consequences and returning to normal as quickly as possible (Kešetović and Thot, 2012). A crisis does not have to mean a terrible event, but a driver for positive changes. In crisis situations, there are new opportunities and potential changes are faster, also people change, new plans and strategies are developed, new experiences and knowledge are created. In modern organizations, crisis management is increasingly an integral part of management processes. Crisis management assesses the possibility of risk when making business decisions and reveals potential threats and opportunities for business improvement. Timely detection of threats and deficiencies are decisive elements of crisis prevention and management. Given that companies depend on the skills and knowledge of management, it has been observed that the main cause of economic crises and even the underdevelopment of many countries is the inefficient application of management, poor management and lack of knowledge of management matters, while the lack of resources is a secondary cause of crises and lagging behind in development. The qualities that a manager must have when managing a crisis are: resistance to stress, the ability to work in a team environment, the ability to think under pressure, unlimited tolerance, listening skills, effectiveness and efficiency, persistence, sees himself and the company in the phase of exiting the crisis, has high level of complex thinking. Crisis management requires a leader who has the ability to think and plan and is not weak to the emotional pressures of a crisis situation.

## **2.2. Tasks of crisis management for successful suppression of business crisis**

The tasks of crisis management are very extensive, from setting up preventive measures that reduce the occurrence of a crisis to a minimum possibility, to crisis management, its mitigation, timely response and remediation after a crisis. A crisis can affect any organization, regardless of its size. Managers of organizations affected by a crisis situation must act quickly in order to establish its cause, remove it and, with as little damage as possible, resolve the business crisis. A quick and decisive reaction made on the basis of recognizing the symptoms of a crisis is a characteristic of good crisis management and leads to a quick resolution of the crisis with as few consequences as possible. Every crisis situation should be analyzed upon completion and lead to insights and conclusions that will make the company stronger for future operations. If the company manages to manage the crisis better than its competitors, successful crisis management can become a competitive advantage of the company (Osmanagić-Bedenik, 2010). Therefore, we can single out four common tasks that management and crisis management have (Kružić, 2015):

- 1) Actions and decisions aimed at the organization during the duration of the crisis, including leading the crisis management team, evaluating the nature of the crisis, assessing the damage, assessing the possibility of recovery and communicating with the public.
- 2) Actions, decisions that must be implemented during the duration of the crisis, assuming responsibility, assessing the possibility of damage and consequences. Organizing and implementing the recovery action.
- 3) Knowing the lessons from the past crisis and preparing to avoid future crises, recognizing the different types of crises that may arise, recognition of the stages through which a crisis passes, improving the ability to manage future crises, controlling the organization of crisis management.
- 4) To prepare well for the emergence of a future crisis, using general knowledge of management theory and especially tools for risk analysis, SWOT analysis, predictions of the future of events, scenario plans, analysis Bex model and Z-score.

Effective crisis management requires managers to understand the sources of crisis events and the strategies needed to detect and plan for them. A business crisis does not happen suddenly, there are often warning signs about the possible development of a crisis. Some managers are simply in disbelief and do not believe the crisis warning data. therefore, the crisis management team and the crisis management plan are the core of the crisis planning organization.

## **2.3. Business crisis management in public and private sector companies**

A company is an independent economic, technical and social entity owned by certain entities, which produces goods or services for market needs, using appropriate resources and bearing business risk, in order to achieve profit and other economic and social goals. Companies can be systematized according to: forms of ownership (private, public and mixed), degree of responsibility towards creditors, subject of business, size. When talking about public companies, it is clear that they are state-owned companies, and it represents a concept that unites the elements of the public on the one hand and market activity on the other. Thus, the elements of the public are reflected in three points (Kesner-Škreb, 1993):

- 1) The most important business decisions are made by the state as the owner of permanent capital, either through one of its agencies, or through administrative boards in which state representatives sit. Decision-making criteria are not only related to financial profit, but also to wider social interests (eg social policy).
- 2) Profits and losses of operations through the state budget belong to the entire social community.



- 3) A public company is responsible for its operations to the whole society, that is, to the parliament as the ultimate "guardian" of the public interest.

Private companies are privately owned by individual (individual) owners and joint companies with a larger number of owners (partnerships and joint stock companies). A sole proprietorship is founded by one person (entrepreneur) and contributes his capital to it. Crisis as a phenomenon occurs equally in both the private and public sectors, however, it is necessary to define which crises occur in the public and which in the private sector. According to numerous scientific and professional works, the sources of the business crisis are classified as internal and external sources of the business crisis. The internal causes of the crisis in public and private companies are errors in leadership and management, insufficient planning, inappropriate business management or control. Most of the business activity is realized on the basis of adopted or missed decisions, which later turn out to be wrong or ineffective. Since uncertainty is an integral part of decisions, prior analyzes of the framework conditions and business situations in the company are necessary as high-quality as possible. Management is not only responsible for goals and decisions, but also for the entire management process: planning, control, information and reporting, organizing and managing processes and human resources (Osmanagić Bedenik, 2016). In public companies, problems of inadequate education, lack of managerial knowledge and skills are most often encountered, which causes the absence of vision and ability to plan at a strategic level, as well as setting wrong, unclear and unachievable goals. However, in private sector companies, management at the operational level does not have adequate knowledge, which is evident through poor work organization and insufficient adaptation to the market (Sučević, 2010). Insufficient own capital is a very common cause of crisis, which leads to over-indebtedness and insolvency, especially when creditors are no longer willing to financially monitor the company's operations. The possible causes of such a situation are found in the inadequate management of the company in the previous business phases. Problems in business can arise due to sudden expansion of business, bad investment decisions, bad decisions about self-financing or external financing and similar (Osmanagić Bedenik, 2016). The company uses the strength of its balance sheet and often takes on additional debt to maintain its size. The peak of the company's problem is when the financial position weakens because the company tries to maintain all its activities, including those that operate at a loss. If the company lost contact with the market and customers and at the same time increased the debt ratios, then the sinking is very close (Sučević, 2010). Sinking is common among private companies, while public companies have financial support from the state, more favorable borrowing conditions, reduced risk of blockade, the state enables write-off or reprogramming of debts. The external causes of the crisis can be divided into two segments. The first category is the political, economic or regulatory characteristics of the market that management cannot influence, and as such limitations accept and try to operate within them. The second category is changes in the environment that the company's management should anticipate with their knowledge and skills and prepare the company for these changes. Economic changes in the environment include a general decline in demand, the international monetary crisis, an increase in interest rates, a decline in credit placements, and similar. Both public and private companies are faced with competitive changes, such as products with a lower price, new more functional and better quality products, new competitors on the market, etc. If the management of the company does not follow concrete changes and does not take the necessary business actions, the company loses its competitive advantages and market share.

### 3. RESULTS OF THE ANALYSIS OF EFFECTIVE BUSINESS CRISIS MANAGEMENT IN PUBLIC AND PRIVATE SECTOR COMPANIES

Due to the increased occurrence of various types of crises and disasters in modern society, the only way to mitigate their negative effect is to know and introduce crisis management. The fundamental problem that arises is not only the fact that most of these events cannot be predicted, but also the inability to deal with new situations as a result of the lack of knowledge about crisis management and knowledge about successfully overcoming crises. Often, managers and/or company owners are not aware of the importance of crisis management for the needs of timely detection of a business crisis, and timely detection of measures to combat it. Based on the above, we define the following goal of the research: to prove the importance of crisis management for successful business enterprises of the public and private sector. The following hypotheses arise from the above:

- H1 – There is a significant positive statistical relationship between the establishment of crisis management and the business performance of public and private sector companies
- H2 – Public and private sector companies pay considerable attention to the organization of crisis management
- H3 – The development of crisis management within public and private sector companies is at a satisfactory level

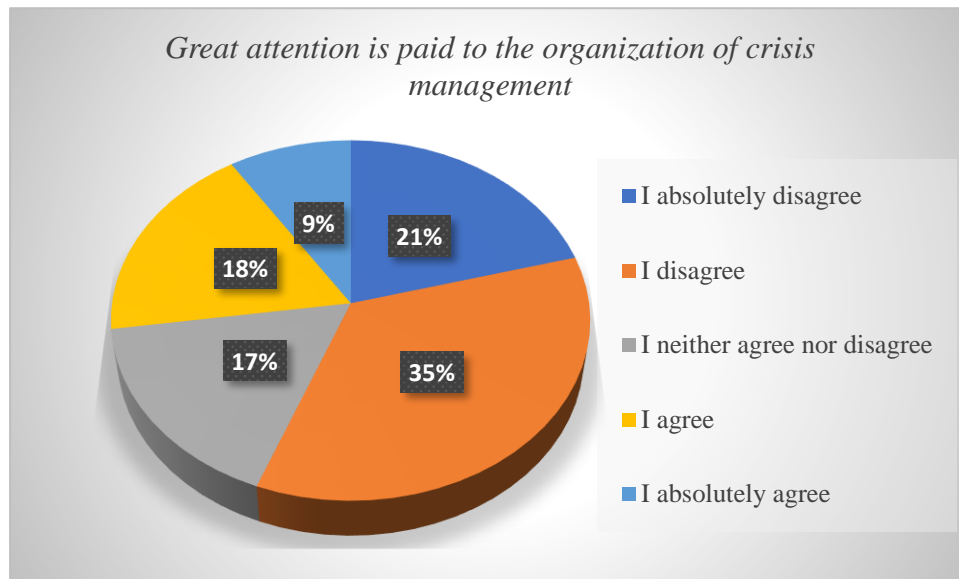
The research was conducted through an anonymous survey of management (all levels) on a sample of 154 public and private sector companies in the Republic of Croatia, while the performance indicators of the companies (included in the sample) were obtained from the financial statements for business 2022. The survey was conducted in May and June 2023. Of the total number of companies included in this research, 63% are private sector companies, and 37% are public sector companies. In terms of number of employees, the most are those companies with 1 to 50 employees, 66% of them, followed by 21% of companies with 51 to 100 employees, 12% with over 100 to 500 employees and 1% of companies with over 500 employees. Demographic data of the respondents are as follows: by gender - male 68% and female 32%, followed by highly educated and master's degree 83% and high school 17%. According to the length of service of respondents in current managerial positions, the structure is as follows: up to one year, 13% of them, from one to five years 39%, more than five and less than ten are 26% of managers, and more than ten years of service is 22% managers from the sample.

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,689 <sup>a</sup>	,451	,434	1,01470	,451	20,713	2	152	,000	2,021
a. Predictors: (Constant), CM										
b. Dependent Variable: Profit										

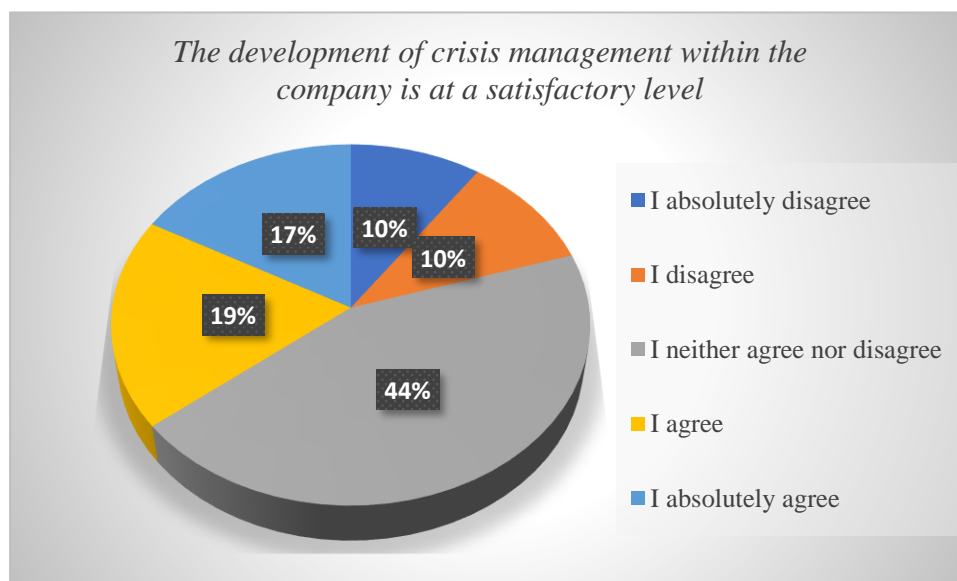
*Table 1: Correlation coefficient of crisis management organization and business performance  
(Source: Author's own research)*

Regression analysis of the connection between the organization of crisis management (CM) and the business performance of public and private sector companies (Profit), from the simple Pearson correlation coefficient ( $R = 0.689$ ) from table 1, a positive significant statistical connection is visible. With the appropriate level of significance ( $p < 0.001$ ), and from the coefficient of determination of 45.1%, one can speak of good representativeness of the model.

The obtained F ratio with the number of degrees of freedom confirms that there is a statistically significant contribution, the independent variable predicts the dependent variable ( $F_{2, 152} = 20.713$ ; Sig. < 0.001). Furthermore, an analysis of the standard coefficient was made because the independent and dependent variables were obtained from different measurement scales,  $\beta$  shows the positive direction of the regression line, while for the independent variable (establishment of crisis management) found a statistically significant contribution to the regression model. The overall analysis of the CM and Profit regression model shows that the organization of crisis management is significantly positively statistically related to the performance of public and private sector companies, thus confirming the first research hypothesis.



*Graph 1: Respondents' opinion on paying attention to the organization of crisis management of public and private sector companies  
(Source: Author's own research)*



*Graph 2: The attitude of respondents regarding the development of crisis management within companies is at a satisfactory level  
(Source: Author's own research)*

From graphs 1 and 2, which show the attitude of the respondents on paying attention to the crisis management system and on the development of crisis management within companies, it can be seen that 56% of the respondents do not agree that sufficient attention is paid to the crisis management system, while only 27% agree with the above assertion; however, 36% of respondents agree with the statement about the sufficient level of development of crisis management within the company, and 44% cannot say, while 20% of respondents believe that the development of crisis management is at a satisfactory level. From the obtained results, it can be concluded that the second and third hypotheses are partially confirmed, while public and private companies have the same set of values, which is the strengthening of social responsibility, the strengthening of organizational culture and the desire to establish high requirements for professionalism. Public and private companies face the same challenges in the market and, depending on the type of business, face similar crises. The companies included in the research do not sufficiently use instruments and methods of crisis management, and it can be concluded that they are not sufficiently prepared for the occurrence of a possible business crisis.

#### 4. CONCLUSION

Numerous examples from practice and research have shown the responsibility of management for the occurrence of numerous crises in business organizations. Business crises are most often the result of their bad and unrealistic business management decisions. Crisis situations introduce uncertainty, require a quick reaction and seriously endanger business enterprises in all business segments. The management of Croatian public and private sector companies is responsible for effective crisis management in terms of prevention, timely recognition and successful resolution of various types of crises that companies face during their life cycle. This is what today distinguishes successful management and successful business organizations, which not only survive crisis situations, but also prosper, from business organizations for which even a small crisis is disastrous for both large and small companies, whether they are public or private. The research carried out on a sample of 154 Croatian public and private sector companies, where the management of all levels was examined, led to the following conclusions: There is a significant positive statistical connection between the establishment of crisis management and the business performance of public and private sector companies, which is confirmed by the correlation coefficient of 0.689. It was also concluded that public and private sector companies do not significantly pay attention to the organization of crisis management, nor is the development of crisis management within the company at a satisfactory level. However, since public and private companies have an extremely important function as drivers of economic development in Croatia, managers are well on their way to bringing the implementation and organization of crisis management to a higher level of business.

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## THE CONTRIBUTION OF THE BALANCE OF ORGANIZATIONAL VALUES TO THE SUCCESSFUL BUSINESS OF COMPANIES

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### ABSTRACT

*One of the key questions in researching the concept of organizational values is whether they are contemporary organizations, considering that they operate in a dynamic environment and that they most often strive to achieve several different, and conflicting goals, should equally develop values from different categories, or should they their values be balanced. Empirical research on a sample of 72 large Croatian companies on the impact of the balance of organizational values on business, and on organizational loyalty as a subjective factor of company employees, and on organizational performance, which can be viewed as a complete objective factor. The results of the research confirmed that organizational values are a concept of strategic management, as a concept related to the purpose of the organization's existence, and that therefore their influence can be meaningfully questioned only on those business variables that give a rounded picture of the business. The aim of the paper is to highlight the importance of a better understanding of the idea of the balance of organizational values, which benefits all participants in the complex process of managing organizational values, which results in the successful business of the company in the long term.*

**Keywords:** *organizational values, business performance, large companies, success of companies*

### 1. INTRODUCTION

Modern business conditions, which are characterized by increasingly numerous and stronger competition, increasingly demanding customers, and especially an increasingly uncertain environment, are increasingly harsh and are a real challenge for any business organization that wants to prosper in them. Nowadays, the management of business organizations is becoming more and more demanding. In such an ungrateful situation, in which a single technique, method or business model no longer just does not guarantee market leadership, but often times cannot even be a guarantee of survival, it is increasingly clear that focusing only on the surface level, which is dominated by the technical component, is no longer sufficient. Although this, the technical organization of business, should by no means be ignored, modern business conditions demand that the very foundations of every business be reexamined, as pillars on which individual business is based, and these pillars are organizational values. Many scientific and professional papers have been written about the important role of organizational values in business, while this topic has been extremely topical in the last few years. However, there are still no concrete and empirically supported answers to the question of which is the most desirable set of values, and not even to the question of the existence of the need to balance organizational values. One of the reasons for this is certainly the positive connotation of values, they somehow represent everything that is good for an organization (Brčić and Vuković, 2008: 53), and direct the organization to what is good, desirable and valuable (Musek Lešnik, 2007: 15). Therefore, the prevailing opinion is that dedication to the organization's values is sufficient in itself. But is it enough to just be aware of the importance of the value dimension in business and to manage organizational values in a random way, or is it important to cultivate specific values in this process. Therefore, the main goal of this paper is to highlight the importance of strengthening the understanding of the role of organizational values in business with special emphasis on the importance and role of balancing organizational values.

## **2. DEVELOPMENT OF THE CONCEPT OF ORGANIZATIONAL VALUES**

Initial scientific research into the concept of value was focused on the personal values of the individual, and the first them was systematically studied by the psychologist Rokeach. According to him, values are permanent beliefs that a certain goal or way of behaving is personally or socially preferable to some other goal or way of behaving. They are integrated into a specific value system, as a set of permanent beliefs about preferred goals and ways of behaving differ in importance (Rokeach, 1973: 5). However, human preoccupation with values is of a much earlier date, and humanity has been preoccupied with them since ancient times. For example, on an Egyptian grave from around 2,000 years BC. found an inscription stating that the deceased did not steal, that he was not greedy, that he did not killed no man, had he not lied, committed adultery (Sharp, 2000). This is just one of the examples that clearly indicates how important it was for people, even in the distant past, to stick to certain principles and values, based on which they shaped their behavior and which marked their lives to that extent. Therefore, it is considered justified to talk about the concept of organizational values for the reason that it is people who are the key element of each organisations. Although organizations by themselves do not have values, the people who make up an organization, its employees, shape organizational values through their values and thus determine acceptable forms of organizational behavior (Hultman and Gellermann, 2002). At the same time, organizational values should not be observed only as a sum of all personal values of organizational members, but as a concept of accepted and shared values in the organization (Argandona, 2003: 21). Sikavica et al. (2008: 426) define organizational values as beliefs and ideas about what type of goals organizational members should achieve and ideas about the appropriate types of behavioral standards that should be supported to achieve these goals. They explain what the organization stands for and believes in, and as such represent the basis of organizational behavior, but also the decisions that the organization makes. brings (Walter, 1995). The most important issue in considering the concept of organizational values concerns their role in business. Therefore, the question arises: Are those organizations that have radically decided to operate based on values truly more successful than those organizations that do not attach importance to organizational values in their operations? One of the basic assumptions is that organizational values positively affect business (Dahlgard et al., 1998; Devero, 2003). A whole series of researches on this topic undoubtedly indicates that organizations based on values are more successful, especially if viewed in the long term, than those organizations that ignore the value dimension in business. Finally, it should be emphasized that the value dimension is inseparable from the question of the purpose of existence, so the concept of organizational values is inseparable from the concept of organizational mission. It is precisely the mission that is the starting point for all organizational activities and efforts, for the reason that it answers some vital organizational questions, such as: why the organization exists, what is its real existence, and what is it trying to achieve (Campbelli and Yeung, 1991; Bart, 2001; Hodgkinson, 2002; Bryson, 2004; David, 2011). Kanter (2011) points out that the values and mission of the organization represent the center of organizational identity and that their permeation can guide employees in all business activities. At the same time, it can be said that organizational values represent the basis for development organizational mission, while on the other hand, the organizational mission can only be fully understood after taking into account its values (Cardona and Rey, 2008). Therefore, the starting point for considering the need to balance organizational values in this work is precisely the concept of organizational mission.

## **3. MANAGEMENT OF THE BALANCE OF ORGANIZATIONAL VALUES**

The question of balance is one of the questions that seems logical in almost all areas, but especially in the personal one to the life of individuals. When we talk about the balance of a business enterprise, we often mean the reasonable management of time and business processes,

as well as all other resources, in a way that achieves satisfactory success. Many books have been written on this topic and it is said that true effectiveness requires balance (Covey, 1997). One of the key questions of contemporary business practice is whether today's business organizations, given that they operate in a dynamic environment and often strive to achieve several different and conflicting goals, should develop balanced organizational values evenly (Malbašić et al., 2015). This question stems from the basis of the stakeholder approach to the company as a concept that tries to explain the functioning of a modern company (Vinšalek Stipić, 2020). The basis of this approach, which was among the first to be promoted by Freeman (1984), is the idea that organizational values should be shaped in such a way that business based on them meets the requirements of all the main interest-influence groups of the company, i.e. stakeholders, which can be interpreted as an aspiration to balance organizational goals. The two most important and most frequently used approaches, or models related to the concept of balancing organizational values, are the Competing Values Model (CVF) authored by Quinn and Rohrbaugh (1983) and Schwartz's value model (Schwartz, 1992). Nevertheless, despite its popularity and the fact that there is almost no value research that does not rely in some way on one of these two value models, the mentioned models primarily consider the psychosocial side of human nature and are therefore not the most suitable for considering the balance of values in the modern business environment. In recent times the thinking of Cardona and Rey (2008) seems to be much more appropriate, who believe that companies with a healthy culture must nurture and develop values from different value categories, where they highlight the following as key categories of organizational values:

- a) business values - refer to the company's operations and profit-making activities (such as: perseverance, efficiency, expertise, orientation towards results)
- b) relational values - promote quality in interpersonal relationships (such as: communication, teamwork, respect for people)
- c) development values - they are aimed at differentiating and constantly improving the company (such as: innovation, creativity, learning, continuous progress)
- d) contribution values - they are aimed at satisfying interest-influential groups to a greater extent than what is expressly required by the business relationship (such as: customer satisfaction, interest in people, social responsibility)

The key concept of this paper is the balance of organizational values, and the assumption related to it is that this balance can be measured. This assumption is derived from the value balance equation, which is defined for the purposes of a clearer understanding of the concept of balance, and which is recorded as follows:  $OV = ax_1 + bx_2 + cx_3 + dx_4$  according to Cardona and Rey (2008). The value balance equation actually shows the extent to which values from a particular category of values determined by Cardona are represented in the sum of total organizational values and Rey (2008). At the same time, OV represents the sum of the total organizational values of an organization, coefficients a, b, c and d are relative weights with independent variables, while  $x_1$  are business values,  $x_2$  relational values,  $x_3$  development values and  $x_4$  contribution values.

#### **4. THE INFLUENCE OF THE BALANCE OF ORGANIZATIONAL VALUES ON BUSINESS OPERATIONS**

As already stated, there are numerous studies that confirm the significant impact of organizational values on business. However, given that different standards can be used for the work of the company and its operations, it is necessary to specify the variables that will be measured and that will be tried to be connected with the independent variable, which in this case is represented by the concept of organizational values.



Therefore, the two business indicators considered in this paper are two dependent variables: organizational loyalty, which can be seen as a subjective factor of employees; and organizational effectiveness, which can be viewed as a complete objective factor in the study of business performance. Organizational loyalty was chosen because it is one of the basic types of attitudes about work (Robbins and Judge, 2009), and it is closely related to the concept of organizational values. Organizational loyalty can be most simply defined as the degree to which a person identifies with a certain organization and its goals and wants to remain a member of that organization (Blau and Boal, 1987), and previous research has shown that organizational loyalty is a multidimensional construct. The research results presented in this paper are based on the multidimensional model of organizational loyalty set by Meyer et al. (1993), which today is primarily used in the research of this issue. This model distinguishes three components of organizational loyalty: affective loyalty is manifested as an employee's sense of attachment to the organization and identification with the organization; instrumental loyalty refers to the employee's awareness of the cost of possibly leaving the organization; while normative loyalty refers to the feeling of obligation to stay within the organization for ethical or moral reasons (Maslić Seršić, 2000: 103). Many earlier studies by Tutuncu and Kucukusta (2007) have already shown that a higher degree of organizational loyalty has a positive effect on business, so this is an additional reason to check the direct relationship between the balance of organizational values and organizational loyalty. Also useful are the findings of Finegan (2000), who found that different values have an impact on different components of organizational loyalty. The concept of the balance of organizational values is not new in the field of organization and management, considering that the foundations of this concept, as mentioned above, were laid by Freeman in 1984. However, the novelty is a comprehensive approach to the concept of balance of values, considering that the influence of the balance of organizational values looks at business through the prism of the organizational mission for the reason that it is the starting point for all organizational activities and efforts and as such is inseparable from the value dimension of business. Therefore, the research on the connection between the balance of organizational values with organizational loyalty on the one hand and organizational effectiveness on the other hand, must be based on a concrete model of organizational values, as already presented previously. The model enables the influence of organizational values on organizational loyalty and organizational effectiveness to be seen through the prism of not only organizational values, but also organizational mission, and for this the Organizational Values Model based on the mission, whose authors are Malbašić et al. (2015), seems acceptable. The Organizational Values model is mission-based and relies on the division of organizational values into four basic categories proposed by Cardona and Rey (2008). At the same time, these four categories of values are placed in two basic groups. One refers to the basic orientation of the organization, whereby self-orientation differs from social orientation, while the other refers to the organization's attitude towards change, whereby the organization's aspiration towards stability is differentiated against the organization's aspiration towards progress.

## **5. INVESTIGATION OF THE RELATIONSHIP OF THE BALANCE OF ORGANIZATIONAL VALUES TO THE SUCCESSFUL BUSINESS OF COMPANIES**

In order to investigate the impact of the balance of organizational values on two specific aspects of business, namely on organizational loyalty and on organizational success, it was necessary to have a complete set of instruments that are in line with the theoretical settings of the research. It was used for this purpose the instrument for measuring organizational values used in his work by Malbašić et al. (2015), which is based on the Organizational Values Model based on the mission. This instrument is composed of a series of 28 statements divided into four categories/scales, in accordance with the classification of organizational values on which the model itself is based, while the appropriate reliability of each of the mentioned scales has been

established (values of Cronbach alpha coefficients for these scales range from 0.77 to 0.93). To measure organizational effectiveness, as measures of business performance of companies, a simple and universally applicable method of comprehensive measurement of organizational effectiveness was applied developed by Malbašić et al. (2015), which is based on the Balanced Table of Results. The specificity of this method is that it allows to determine the effectiveness of different organizations (with regard to their size, goals, type of basic activity), which ultimately allows to compare the organizational effectiveness of different organizations. To measure organizational loyalty, the most famous instrument used for this purpose was used, the authors of which also promoted the three-component model of organizational loyalty (Meyer et al., 1993). Their instrument makes it possible to determine, in addition to the overall level of organizational loyalty, the level of each of the three separate components of loyalty – affective, instrumental and normative. The reliability of this instrument was confirmed considering that the values of Cronbach alpha coefficients for the three observed scales are 0.85, 0.79 and 0.73. The data required for conducting the empirical part of the research were collected using a survey questionnaire, by surveying employees of 72 large Croatian companies. The survey was conducted in January and February 2023. Of the total number of respondents, 59.7% were female, while 40.3% were male. The age of the largest number of respondents (a total of 48.0%) is in between 30 and 44 years old, followed by respondents who are 45 or older (34.2% of them in total), while the least number of respondents are 29 or younger (17.8% of them in total). Respondents were analyzed with regard to the total number of years of service, as well as with regard to the number of years of service spent in the current company. These findings indicate that with regard to both mentioned criteria, the largest share of employees has a shorter working experience. Given the nature of the method of comprehensive measurement of organizational effectiveness. Semi-structured interviews were also conducted with the management (management of all levels) of the sample companies, and the profitability of each individual company was analyzed using financial statements for the year 2022.

### **5.1. Analysis of the relationship between the balance of organizational values and organizational loyalty**

The connection of organizational values with the concept of organizational loyalty, as one of the key elements of organizational behavior, was emphasized earlier in the paper. Although a high level of organizational loyalty is not an end in itself. Due to the influence that organizational loyalty has on the overall business result, it was interesting to investigate to what extent the balance of organizational values and organizational loyalty are related, as well as the connection of the balance of organizational values with each of the three main components of loyalty. The obtained research results using a simple regression model, shown by the Pearson correlation coefficient, are as follows:

- 1) Companies with balanced values do not have higher levels of overall organizational commitment than those with unbalanced values. An exemplary correlation analysis found that there is a small negative correlation between the degree of imbalance of organizational values and a higher level of organizational loyalty, but this connection is not statistically significant ( $r=-0.231$ ,  $n=72$ ,  $p>0.05$ ).
- 2) Companies with balanced values do not have a higher level of the affective component of organizational loyalty than those with unbalanced values. An exemplary correlation analysis found that there is a weak negative correlation between the degree of imbalance of organizational values and a higher level of affective organizational loyalty, but this correlation is not statistically significant ( $r=-0.251$ ,  $n=72$ ,  $p>0.05$ ).
- 3) Companies with balanced values have a higher level of the instrumental component of organizational loyalty than those with unbalanced values. The analysis of the correlation coefficient revealed a statistically significant medium-strong and negative correlation

between the degree of imbalance of organizational values and a higher level of instrumental organizational loyalty ( $r=-0.428$ ,  $n=72$ ,  $p<0.05$ ).

- 4) Companies with balanced values do not have a higher level of the normative component of organizational loyalty than those with unbalanced values. The correlation coefficient determined that there is a weak negative correlation between the degree of imbalance of organizational values and a higher level of normative organizational loyalty, but this correlation is not statistically significant ( $r=-0.121$ ,  $n=72$ ,  $p>0.05$ ).

## **5.2. The connection between the balance of organizational values and the success of the organization**

The key research findings presented in this paper refer to the direct connection between the balance of organizational values and the crucial variable of successful businesses of companies. Organizational effectiveness is crucial for evaluating organizational success not only because it is measured by parameters from financial statements, but also because it looks at the company's operations in the past, in the present, and in the future. The results of the research conducted in order to answer the question of the influence of the balance of organizational values on the overall level of organizational success, as well as on each of the five individual perspectives of organizational effectiveness, are as follows:

- 1) Companies with balanced values achieve a higher overall level of organizational effectiveness than those with unbalanced values. An exemplary correlation analysis has been established statistically significant strong negative correlation between the degree of imbalance of organizational values and successful businesses of companies ( $r=-0.545$ ,  $n=72$ ,  $p<0.01$ ).
- 2) Companies with balanced values achieve a higher level of financial perspective of organizational effectiveness (successful businesses of companies) than those with unbalanced values. Correlation analysis shows a statistically significantly strong negative correlation between the degree of imbalance of organizational values and a higher level of successful businesses of companies ( $r=-0.529$ ,  $n=72$ ,  $p<0.01$ ).
- 3) Companies with balanced values do not achieve a higher level of consumer perspective of organizational effectiveness than those with unbalanced values. By conducting a correlation analysis it was determined that there is a medium strong negative correlation between the degree of imbalance of organizational values and a higher level of consumer perspective of organizational effectiveness, but the correlation is not statistically significant ( $r=-0.392$ ,  $n=72$ ,  $p>0.05$ ).
- 4) Companies with balanced values do not achieve a higher level of perspective of internal business processes of organizational effectiveness than those with unbalanced values. By conducting a correlation analysis, it was determined that there is a weak negative correlation between the degree of imbalance of organizational values and a higher level of perspective of internal business processes effectiveness of companies, but this correlation is not statistically significant ( $r=-0.249$ ,  $n=72$ ,  $p>0.05$ ).
- 5) Companies with balanced values achieve a higher level of learning and growth perspective, which contributes to the successful business of companies than those with unbalanced values. the correlation coefficient shows a statistically significant medium-strong negative correlation between the degree of imbalance organizational values and a higher level of perspective of learning and growth of companies ( $r=-0.415$ ,  $n=72$ ,  $p<0.05$ ).
- 6) Companies with balanced values achieve a higher level of strategic perspective of organizational effectiveness than those with unbalanced values. The correlation coefficient determined a statistically significant medium-strong negative correlation between the degree of imbalance of organizational values and the higher level of strategic perspective of companies ( $r=-0.476$ ,  $n=72$ ,  $p<0.05$ ).

## 6. CONCLUSION

By conducting an analysis of the relationship between the balance of the company's organizational values and organizational loyalty, it was not confirmed that companies with balanced values have a higher level of organizational loyalty than those with unbalanced values, however, additional explanations are needed. Increasing the level of organizational loyalty, as an extremely important element of organizational behavior, has never been and must not be the ultimate purpose of business. Organizational loyalty is only one of the links, which needs to be strengthened in order for the final business result to be satisfactory. The fact that only a small negative correlation was found between the degree of imbalance of organizational values and a higher level of organizational loyalty confirms that the issue of balance of values applies even to "intermediate variables" that measure business results. In contrast to organizational loyalty, organizational effectiveness, the business success of companies, is a variable that can be viewed as a "final" dependent variable in business, as a variable that provides information on the overall business result. This is especially the case if, when measuring organizational effectiveness, all key business perspectives are taken into account, and this was exactly the case in this research, as as many as five business perspectives were analyzed (financial, consumer, internal business process perspective, learning and growth perspective, and strategic perspective). Considering that a sample of 72 Croatian companies undoubtedly established that organizations with balanced values achieve a higher level of organizational success than those with unbalanced values, it becomes clear that organizational values are a concept of strategic management and that their true role is visible only if they are observed in the context of achieving long-term strategic goals. Therefore, the combination of organizational values and mission, as the most important element of strategic management, is not only meaningful and logical, but also necessary if one wants to manage organizational values in the right way. The key shortcoming of this research is the recognition of organizational values based on the subjective perceptions of company employees from the research sample. Data on the perceptions and opinions of other interest-influential groups of companies from the sample were not analyzed. Nevertheless, this approach is common in the research of organizational values, primarily due to the ease of access to data, and also due to the fact that it is the employees who can best assess the values of the organization in which they are employed. The research confirmed that organizational values are a concept of strategic management, a concept related to the purpose of the organization's existence, and that as such their influence can only be questioned on those business variables that give a rounded picture of the business.

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